



SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

1999

No.OC190

# TECHNICAL & SERVICE MANUAL

## Series PKH Wall Mounted

Indoor unit  
[Model names]

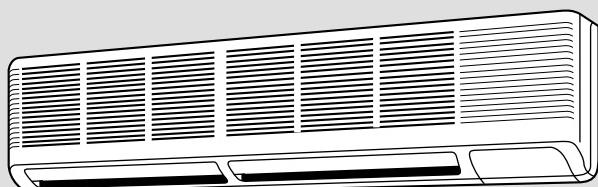
PKH-1.6FKA  
PKH-2FKA  
PKH-2.5FKA  
PKH-3FKA  
PKH-4FKSA

[Service Ref.]

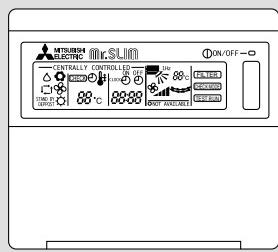
**PKH-1.6FKA-E  
PKH-2FKA-E  
PKH-2.5FKA-E  
PKH-3FKA-E  
PKH-4FKSA-E**

This manual does not cover the following outdoor units. When servicing them, please refer to the service manual No.OC150 and this manual in a set.

[Service Ref.]  
PUH-1.6VKA<sub>3</sub>.UK  
PUH-2VKA<sub>2</sub>.UK  
PUH-2.5VKA<sub>2</sub>.UK  
PUH-3VKA<sub>2</sub>.UK  
PUH-3YKA<sub>2</sub>.UK  
PUH-4YKSA<sub>2</sub>.UK



INDOOR UNIT



REMOTE CONTROLLER

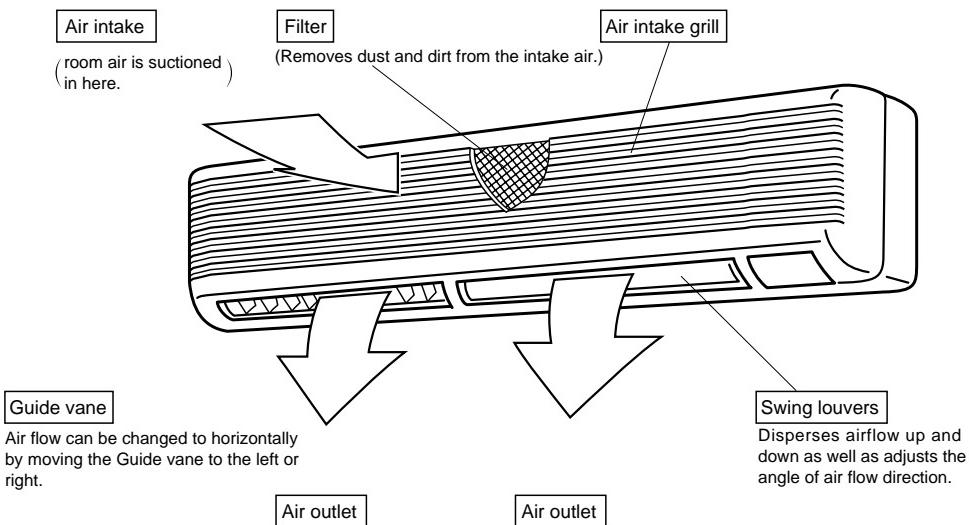
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The Slim Line.  
From Mitsubishi Electric.

Mir.SLIM™

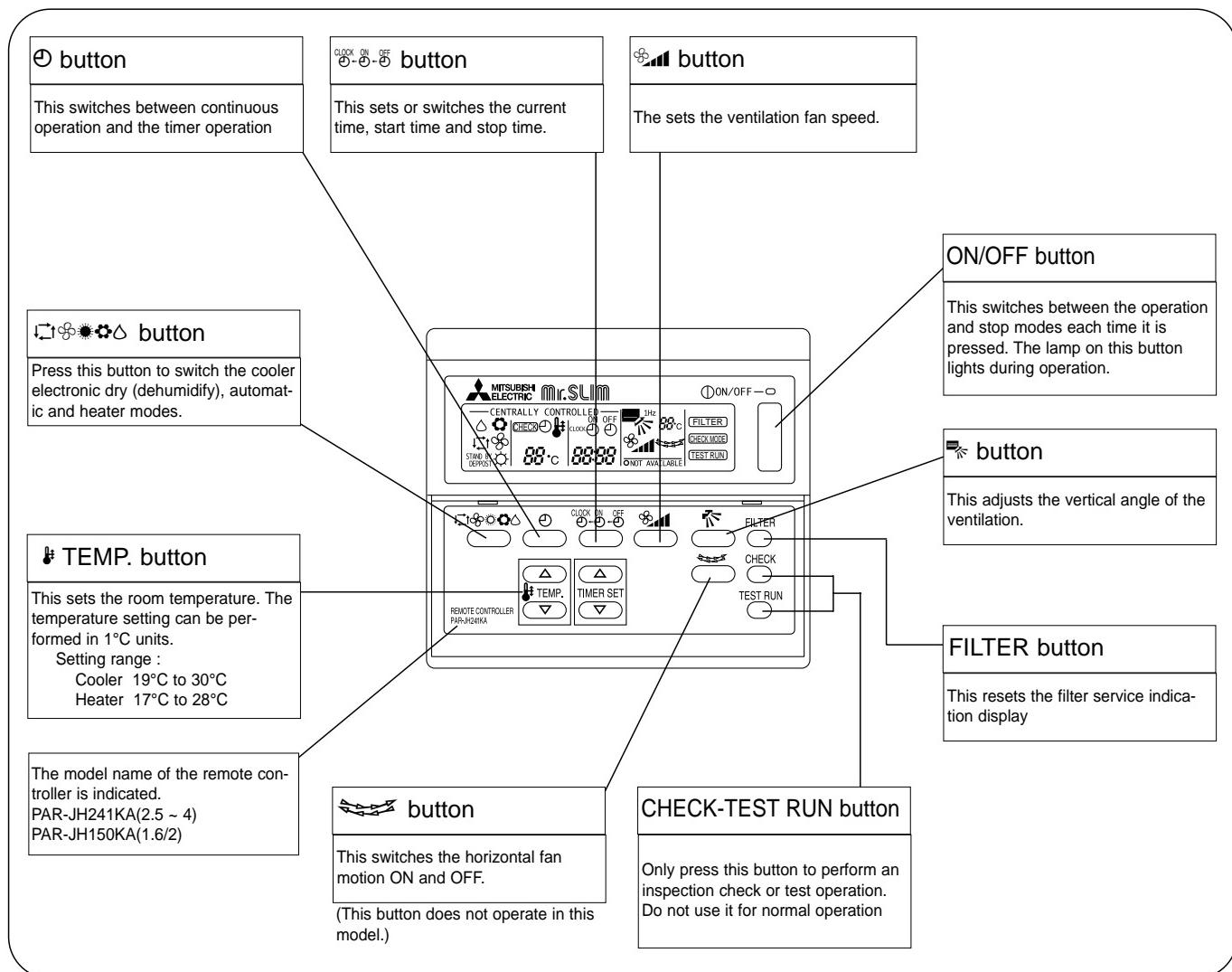
## ● Indoor Unit



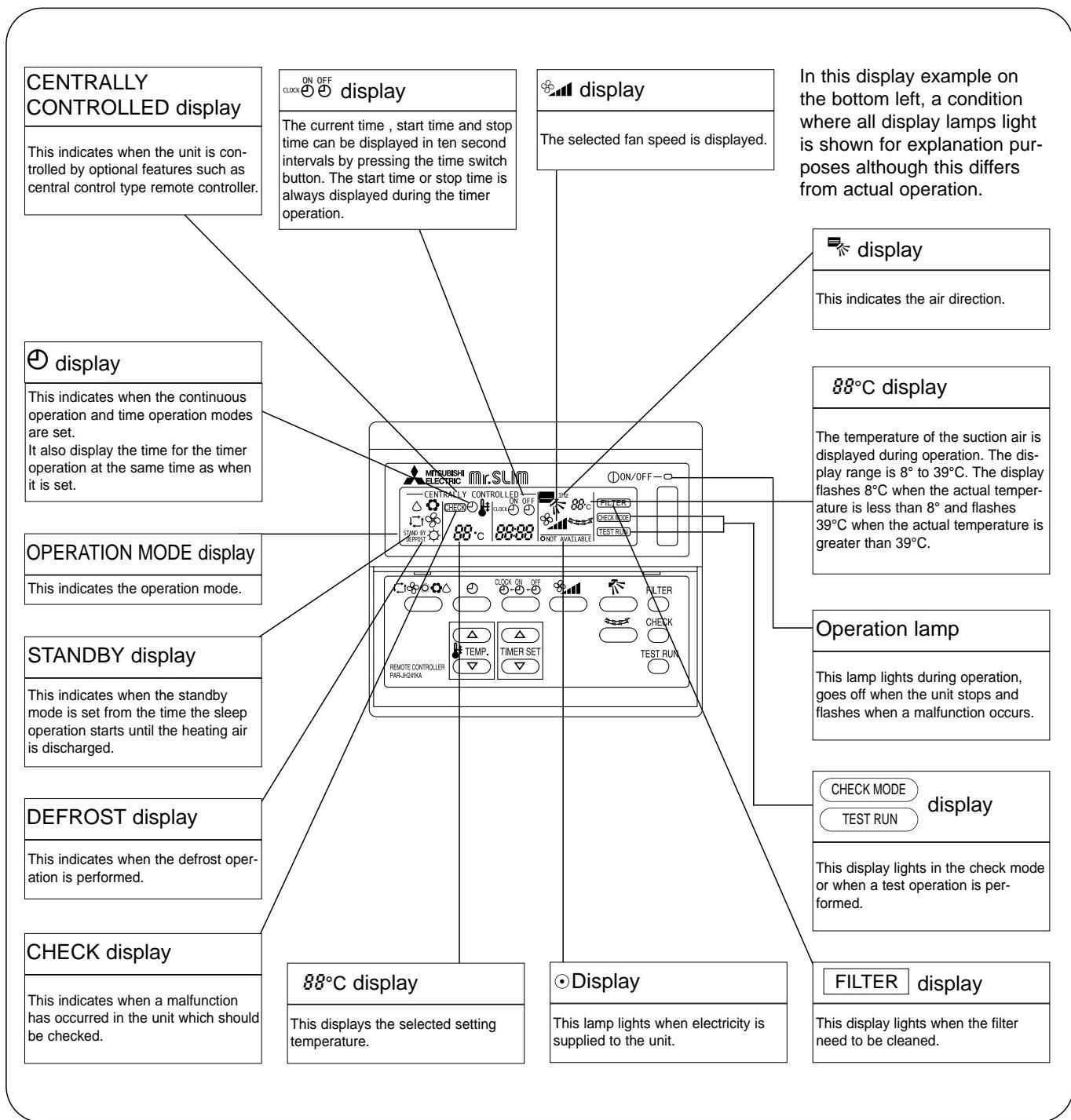
## ● Remote controller

- Once the operation of the unit is set, subsequent operations can only be performed by pressing the ON/OFF button repeatedly.

## ● Operation buttons



## ● Display



## Caution

- Only the  display lights when the unit is stopped and power supplied to the unit.
  - When power is turned ON for the first time the (CENTRAL CTRL) display appears to go off momentarily but this is not a malfunction.
  - When the central control remote control unit, which is sold separately, is used the ON-OFF button,  button and  TEMP button do not operate.
  - “NOT AVAILABLE” is displayed when the  button are pressed. This indicates that this room unit is not equipped with the fan direction adjustment function and the louver function.

# SPECIFICATIONS

Item		Service Ref.		PKH-1.6FKA-E			
Function				Cooling			
Capacity	W			4,500	Heating		
	Btu/h			15,350	4,650		
Total input	kW			1.51	15,900		
<b>Service Ref.</b>		<b>PKH-1.6FKA-E</b>					
Power supply(phase,cycle,voltage)		Single, 50Hz, 220-240V					
Input	kW			0.07	0.07		
Running current	A			0.32	0.32		
Starting current	A			0.40	0.40		
External finish	Munsell 3.4Y 7.7/0.8(White)						
Heat exchanger	Plate fin coil						
Fan	Fan(drive) X No.			Line flow(direct) X 1			
	Fan motor output	kW		0.030			
	Airflow(Low-High)	m³/min<CFM>		10-13(353-459)			
	External static pressure	Pa(mmAq)		0(direct blow)			
Booster heater	kW			—			
Operation control & Thermostat	Remote controller & built-in						
Noise level(Low-High)	dB			36-43			
Unit drain pipe O.D.	mm(in.)			20(13/16)			
Dimensions	W	mm(in.)		1,250(49-3/16)			
	D	mm(in.)		200(7-7/8)			
	H	mm(in.)		300(11-13/16)			
Weight	kg(lbs)			17(37)			
<b>Service Ref.</b>		<b>PUH-1.6VK3.UK</b>					
Power supply (phase, cycle, voltage)		Single, 50Hz, 220-240V					
Input	kW			1.44	1.41		
Running current	A			6.74	6.60		
Starting current	A			33			
External finish	Munsell 5Y 7/1						
Refrigerant control	Capillary tube						
Compressor	Hermetic						
Model	RH247VFCT						
Motor output	kW			1.2			
Starter type	Line start						
Protection devices	Internal thermostat, HP switch						
Heat exchanger	Plate fin coil						
Fan	Fan(drive)XNo.			Propeller (direct) X 1			
	Fan motor output	kW		0.065			
	Airflow	m³/min<CFM>		45(1,590)			
Defrost method	Reverse cycle						
Noise level	dB			49			
Dimensions	W	mm(in.)		870(34-1/4)			
	D	mm(in.)		295+24(11-5/8 add 1)			
	H	mm(in.)		650(25-5/8)			
Weight	kg(lbs)			53(117)			
Refrigerant		R-22					
Charge	kg(lbs)			2.2(4.9)			
Oil<Model>	L			0.57<MS-56>			
Pipe size O.D.	Liquid	mm(in.)		9.52(3/8)			
	Gas	mm(in.)		15.88(5/8)			
Connection method	Indoor side			Flared			
	Outdoor side			Flared			
Between the indoor & outdoor unit	Height difference			Max. 40m			
	Piping length			Max. 40m			

Note1. Rating Conditions (JIS B 8616)

Cooling : Indoor : 27°C (80°F) DB, 19°C (66°F) WB  
Outdoor : 35°C (95°F) DB, 24°C (75°F) WBHeating : Indoor : 20°C (68°F) DB  
Outdoor : 7°C (45°F) DB, 6°C (43°F) WB

2. Guaranteed operating range		Indoor	Outdoor
Cooling	Upper limit	35°C DB, 22.5°C WB	46°C DB
	Lower limit	21°C DB, 15.5°C WB	-5°C DB
Heating	Upper limit	27°C DB	21°C DB, 15.5°C WB
	Lower limit	20°C DB	-8.5°C DB, -9.5°C WB

Item		Service Ref.		PKH-2FKA-E	
Function		Cooling		Heating	
Capacity		W	5,500	6,250	
Total input		Btu/h	18,800	21,300	
Total input		kW	2.27	2.29	
INDOOR UNIT	Service Ref.		PKH-2FKA-E		
	Power supply(phase,cycle,voltage)		Single, 50Hz, 220-240V		
	Input	kW	0.07	0.07	
	Running current	A	0.32	0.32	
	Starting current	A	0.40	0.40	
	External finish		Munsell 3.4Y 7.7/0.8(White)		
	Heat exchanger		Plate fin coil		
	Fan	Fan(drive) X No.	Line flow(direct) X 1		
	Fan motor output	kW	0.030		
	Airflow(Low-High)	m³/min<CFM>	10-13(353-459)		
	External static pressure	Pa(mmAq)	0(direct blow)		
	Booster heater	kW	—		
	Operation control & Thermostat		Remote controller & built-in		
	Noise level(Low-High)		36-43		
	Unit drain pipe O.D.		mm(in.)		
	Dimensions	W	20(13/16)		
		D	1,250(49-3/16)		
		H	200(7-7/8)		
	Weight		300(11-13/16)		
	Weight		17(37)		
OUTDOOR UNIT	Service Ref.		PUH-2VKA2,UK		
	Power supply (phase, cycle, voltage)		Single, 50Hz, 220-240V		
	Input	kW	2.20	2.22	
	Running current	A	9.86	9.95	
	Starting current	A	45		
	External finish		Munsell 5Y 7/1		
	Refrigerant control		Capillary tube		
	Compressor		Hermetic		
	Model		NH38VMDT		
	Motor output		1.7		
	Starter type		Line start		
	Protection devices		Internal thermostat, HP switch		
	Heat exchanger		Plate fin coil		
	Fan	Fan(drive)XNo.	Propeller (direct) X 1		
	Fan motor output	kW	0.065		
	Airflow	m³/min<CFM>	45(1,590)		
REFRIGERANT PIPING	Defrost method		Reverse cycle		
	Noise level		49		
	Dimensions	W	870(34-1/4)		
		D	295+24(11-5/8 add 1)		
		H	650(25-5/8)		
	Weight		64(141)		
	Refrigerant		R-22		
	Charge		2.2(4.9)		
	Oil<Model>		1.2<MS-32>		
	Pipe size O.D.	Liquid	9.52(3/8)		
		Gas	15.88(5/8)		
REFRIGERANT PIPING	Connection method		Indoor side		
	Outdoor side		Flared		
	Between the indoor & outdoor unit		Height difference		
	Piping length		Max. 40m		

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Heating	Upper limit	27°C DB	21°C DB, 15.5°C WB
	Lower limit	20°C DB	-8.5°C DB, -9.5°C WB

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INDOOR UNIT	Service Ref.		PKH-2.5FKA-E	
	Function		Cooling	Heating
	Capacity	W	6,500	7,200
		Btu/h	22,200	24,600
	Total input	kW	2.56	2.33
	Service Ref.		PKH-2.5FKA-E	
	Power supply(phase,cycle,voltage)		Single, 50Hz, 220-240V	
	Input	kW	0.095	0.095
	Running current	A	0.44	0.44
	Starting current	A	0.80	0.80
	External finish		Munsell 3.4Y 7.7/0.8(White)	
OUTDOOR UNIT	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) X No.	Line flow(direct) X 2	
	Fan motor output	kW	0.040	
		Airflow(Low-High)	15-20(530-706)	
		External static pressure	0(direct blow)	
	Booster heater		—	
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		39-45	
	Unit drain pipe O.D.		20(13/16)	
	Dimensions	W	mm(in.)	
		D	1,400(55-1/8)	
		H	235(9-1/4)	
	Weight		340(13-3/8)	
OUTDOOR UNIT	kg(lbs)		24(53)	
	Service Ref.		PUH-2.5VKA <sub>2</sub> .UK	
	Power supply (phase, cycle, voltage)		Single, 50Hz, 220-240V	
	Input	kW	2.46	2.23
	Running current	A	10.68	9.78
	Starting current	A	52	
	External finish		Munsell 5Y 7/1	
	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model		NH41VMĐT	
REFRIGERANT PIPING	Motor output		2.0	
	Starter type		Line start	
	Protection devices		Internal thermostat, HP switch	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)XNo.	Propeller (direct) X 1	
	Fan motor output	kW	0.085	
		Airflow	50(1,764)	
		m <sup>3</sup> /min<CFM>		
	Defrost method		Reverse cycle	
	Noise level		52	
REFRIGERANT PIPING	Dimensions	W	870(34-1/4)	
		D	295+24(11-5/8 add 1)	
		H	850(33-7/16)	
	Weight		64(150)	
	Refrigerant		R-22	
	Charge		2.8(6.2)	
	Oil<Model>		1.2<MS-32>	
	Pipe size O.D.	Liquid	9.52(3/8)	
		Gas	15.88(5/8)	
	Connection method	Indoor side	Flared	
		Outdoor side	Flared	
	Between the indoor & outdoor unit		Height difference	
	Piping length		Max. 50m	
			Max. 50m	

Note1. Rating Conditions (JIS B 8616)

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Heating	Upper limit	27°C DB	21°C DB, 15.5°C WB
	Lower limit	20°C DB	-8.5°C DB, -9.5°C WB

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Item	Service Ref.		PKH-3FKA-E	
Function			Cooling	Heating
Capacity	W		7,900	9,100
	Btu/h		27,000	31,000
Total input	kW		3.25	3.04
INDOOR UNIT	Service Ref.	PKH-3FKA-E		
	Power supply(phase,cycle,voltage)		Single, 50Hz, 220-240V	
	Input	kW	0.095	0.095
	Running current	A	0.44	0.44
	Starting current	A	0.80	0.80
	External finish		Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) X No.		
	Fan motor output	kW	0.040	
	Airflow(Low-High)	m³/min<CFM>	15-20(530-706)	
	External static pressure	Pa(mmAq)	0(direct blow)	
	Booster heater	kW	—	
OUTDOOR UNIT	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		39-45	
	Unit drain pipe O.D.		mm(in.) 20(13/16)	
	Dimensions	W	mm(in.) 1,400(55-1/8)	
		D	mm(in.) 235(9-1/4)	
		H	mm(in.) 340(13-3/8)	
	Weight	kg(lbs)	24(53)	
	Service Ref.	PUH-3VKA2.UK / PUH-3YKA2.UK		
	Power supply (phase, cycle, voltage)		Single, 50Hz, 220-240V/3, 50Hz, 380-415V(4wires)	
	Input	kW	3.15/3.15	2.94/2.94
REFRIGERANT PIPING	Running current	A	13.82/5.16	12.89/4.81
	Starting current	A	58/37	
	External finish		Munsell 5Y 7/1	
	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model		NH52VNDT/NH52YDAT	
	Motor output	kW	2.2/2.4	
	Starter type		Line start	
	Protection devices		Internal thermostat, HP switch/Thermal relay, thermal switch	
	Heat exchanger		Plate fin coil	
REFRIGERANT PIPING	Fan	Fan(drive)XNo.		
	Fan motor output	kW	0.085	
	Airflow	m³/min<CFM>	50(1,764)	
	Defrost method		Reverse cycle	
	Noise level		52	
	Dimensions	W	mm(in.) 870(34-1/4)	
		D	mm(in.) 295+24(11-5/8 add 1)	
		H	mm(in.) 850(33-7/16)	
	Weight	kg(lbs)	75(165)	
REFRIGERANT PIPING	Refrigerant		R-22	
	Charge	kg(lbs)	3.2(7.1)	
	Oil<Model>	L	1.6<MS-32>	
	Pipe size O.D.	Liquid	mm(in.) 9.52(3/8)	
		Gas	mm(in.) 15.88(5/8)	
	Connection method		Indoor side	
	Outdoor side		Flared	
	Between the indoor & outdoor unit		Height difference	
	Piping length		Max. 50m	
	Piping length		Max. 50m	

Note1. Rating Conditions (JIS B 8616)

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Heating	Upper limit	27°C DB	21°C DB, 15.5°C WB
	Lower limit	20°C DB	-8.5°C DB, -9.5°C WB

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INDOOR UNIT	Service Ref.		PKH-4FKSA-E	
	Function		Cooling	Heating
	Capacity	W	9,500	10,700
		Btu/h	32,400	36,500
	Total input	kW	3.31	3.30
	Service Ref.		PKH-4FKSA-E	
	Power supply(phase,cycle,voltage)		Single, 50Hz, 220-240V	
	Input	kW	0.114	0.114
	Running current	A	0.53	0.53
	Starting current	A	0.90	0.90
OUTDOOR UNIT	External finish		Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) X No.	Line flow(direct) X 2	
	Fan motor output	kW	0.070	
		m³/min<CFM>	22-28(777-989)	
		Pa(mmAq)	0(direct blow)	
	Booster heater		—	
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		41-46	
	Unit drain pipe O.D.		mm(in.) 20(13/16)	
REFRIGERANT PIPING	Dimensions	W	mm(in.) 1,680(66-1/8)	
		D	mm(in.) 235(9-1/4)	
		H	mm(in.) 340(13-3/8)	
	Weight		kg(lbs) 28(62)	
	Service Ref.		PUH-4YKSA2.UK	
	Power supply (phase, cycle, voltage)		3, 50Hz, 380-415V(4wires)	
	Input	kW	3.20	3.19
	Running current	A	5.24	5.22
	Starting current	A	40	
	External finish		Munsell 5Y 7/1	
OUTDOOR UNIT	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model		NH56YDAT	
	Motor output		2.7	
	Starter type		Line start	
	Protection devices		Thermal relay, thermal switch, HP switch, anti-phase protector	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)XNo.	Propeller (direct) X 2	
	Fan motor output	kW	0.065+0.065	
		m³/min<CFM>	95(3,350)	
REFRIGERANT PIPING	Defrost method		Reverse cycle	
	Noise level		54	
	Dimensions	W	mm(in.) 870(34-1/4)	
		D	mm(in.) 295+24(11-5/8 add 1)	
		H	mm(in.) 1,258(49-1/2)	
	Weight		kg(lbs) 94(207)	
	Refrigerant		R-22	
	Charge		4.2(9.2)	
	Oil<Model>		1.6<MS-32>	
	Pipe size O.D.	Liquid	mm(in.) 9.52(3/8)	
		Gas	mm(in.) 19.05(3/4)	
REFRIGERANT PIPING	Connection method	Indoor side		Flared
		Outdoor side		Flared
	Between the indoor & outdoor unit		Height difference Max. 50m	
	Piping length		Max. 50m	

Note1. Rating Conditions (JIS B 8616)

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	Lower limit	20°C DB	-8.5°C DB, -9.5°C WB

**3****DATA****1. PERFORMANCE DATA****1) COOLING CAPACITY<1>  
PKH-1.6FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		20				25				30			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	4540	3042	0.67	1.21	4415	2958	0.67	1.26	4253	2850	0.67	1.36
20	18	4834	2659	0.55	1.23	4706	2589	0.55	1.29	4535	2494	0.55	1.39
20	20	5131	2206	0.43	1.26	5010	2154	0.43	1.31	4831	2077	0.43	1.42
22	16	4540	3405	0.75	1.21	4415	3312	0.75	1.26	4253	3190	0.75	1.36
22	18	4834	3045	0.63	1.23	4706	2965	0.63	1.29	4535	2857	0.63	1.39
22	20	5131	2617	0.51	1.26	5010	2555	0.51	1.31	4831	2464	0.51	1.42
24	16	4540	3768	0.83	1.21	4415	3665	0.83	1.26	4253	3530	0.83	1.36
24	18	4834	3432	0.71	1.23	4706	3342	0.71	1.29	4535	3220	0.71	1.39
24	20	5131	3027	0.59	1.26	5010	2956	0.59	1.31	4831	2851	0.59	1.42
24	22	5431	2553	0.47	1.28	5327	2504	0.47	1.34	5142	2417	0.47	1.45
26	16	4540	4131	0.91	1.21	4415	4018	0.91	1.26	4253	3870	0.91	1.36
26	18	4834	3819	0.79	1.23	4706	3718	0.79	1.29	4535	3583	0.79	1.39
26	20	5131	3438	0.67	1.26	5010	3357	0.67	1.31	4831	3237	0.67	1.42
26	22	5431	2987	0.55	1.28	5327	2930	0.55	1.34	5142	2828	0.55	1.45
27	16	4540	4313	0.95	1.21	4415	4195	0.95	1.26	4253	4041	0.95	1.36
27	18	4834	4012	0.83	1.23	4706	3906	0.83	1.29	4535	3764	0.83	1.39
27	20	5131	3643	0.71	1.26	5010	3557	0.71	1.31	4831	3430	0.71	1.42
27	22	5431	3204	0.59	1.28	5327	3143	0.59	1.34	5142	3034	0.59	1.45
28	16	4540	4494	0.99	1.21	4415	4371	0.99	1.26	4253	4211	0.99	1.36
28	18	4834	4205	0.87	1.23	4706	4095	0.87	1.29	4535	3945	0.87	1.39
28	20	5131	3848	0.75	1.26	5010	3758	0.75	1.31	4831	3624	0.75	1.42
28	22	5431	3422	0.63	1.28	5327	3356	0.63	1.34	5142	3240	0.63	1.45
30	16	4540	4540	1.00	1.21	4415	4415	1.00	1.26	4253	4253	1.00	1.36
30	18	4834	4592	0.95	1.23	4706	4471	0.95	1.29	4535	4308	0.95	1.39
30	20	5131	4259	0.83	1.26	5010	4158	0.83	1.31	4831	4010	0.83	1.42
30	22	5431	3856	0.71	1.28	5327	3782	0.71	1.34	5142	3651	0.71	1.45
32	16	4540	4540	1.00	1.21	4415	4415	1.00	1.26	4253	4253	1.00	1.36
32	18	4834	4834	1.00	1.23	4706	4706	1.00	1.29	4535	4535	1.00	1.39
32	20	5131	4669	0.91	1.26	5010	4559	0.91	1.31	4831	4397	0.91	1.42
32	22	5431	4290	0.79	1.28	5327	4208	0.79	1.34	5142	4062	0.79	1.45

Notes CA : Capacity (W)

P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity

SHF : Sensible heat factor

**COOLING CAPACITY<2>**  
**PKH-1.6FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		35				40				45			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	4081	2734	0.67	1.46	3899	2612	0.67	1.55	3706	2483	0.67	1.65
20	18	4355	2395	0.55	1.49	4167	2292	0.55	1.59	3970	2183	0.55	1.70
20	20	4645	1997	0.43	1.53	4451	1914	0.43	1.64	4249	1827	0.43	1.75
22	16	4081	3061	0.75	1.46	3899	2924	0.75	1.55	3706	2780	0.75	1.65
22	18	4355	2744	0.63	1.49	4167	2625	0.63	1.59	3970	2501	0.63	1.70
22	20	4645	2369	0.51	1.53	4451	2270	0.51	1.64	4249	2167	0.51	1.75
24	16	4081	3387	0.83	1.46	3899	3236	0.83	1.55	3706	3076	0.83	1.65
24	18	4355	3092	0.71	1.49	4167	2958	0.71	1.59	3970	2819	0.71	1.70
24	20	4645	2740	0.59	1.53	4451	2626	0.59	1.64	4249	2507	0.59	1.75
24	22	4950	2327	0.47	1.56	4750	2233	0.47	1.68	4543	2135	0.47	1.81
26	16	4081	3714	0.91	1.46	3899	3548	0.91	1.55	3706	3373	0.91	1.65
26	18	4355	3441	0.79	1.49	4167	3292	0.79	1.59	3970	3136	0.79	1.70
26	20	4645	3112	0.67	1.53	4451	2982	0.67	1.64	4249	2847	0.67	1.75
26	22	4950	2723	0.55	1.56	4750	2613	0.55	1.68	4543	2499	0.55	1.81
27	16	4081	3877	0.95	1.46	3899	3704	0.95	1.55	3706	3521	0.95	1.65
27	18	4355	3615	0.83	1.49	4167	3458	0.83	1.59	3970	3295	0.83	1.70
27	20	4645	3298	0.71	1.53	4451	3160	0.71	1.64	4249	3017	0.71	1.75
27	22	4950	3921	0.59	1.56	4750	2803	0.59	1.68	4543	2680	0.59	1.81
28	16	4081	4040	0.99	1.46	3899	3860	0.99	1.55	3706	3669	0.99	1.65
28	18	4355	3789	0.87	1.49	4167	3625	0.87	1.59	3970	3454	0.87	1.70
28	20	4645	3484	0.75	1.53	4451	3338	0.75	1.64	4249	3187	0.75	1.75
28	22	4950	3119	0.63	1.56	4750	2993	0.63	1.68	4543	2862	0.63	1.81
30	16	4081	4081	1.00	1.46	3899	3899	1.00	1.55	3706	3706	1.00	1.65
30	18	4355	4137	0.95	1.49	4167	3958	0.95	1.59	3970	3771	0.95	1.70
30	20	4645	3855	0.83	1.53	4451	3694	0.83	1.64	4249	3527	0.83	1.75
30	22	4950	3515	0.71	1.56	4750	3373	0.71	1.68	4543	3225	0.71	1.81
32	16	4081	4081	1.00	1.46	3899	3899	1.00	1.55	3706	3706	1.00	1.65
32	18	4355	4355	1.00	1.49	4167	4167	1.00	1.59	3970	3970	1.00	1.70
32	20	4645	4227	0.91	1.53	4451	4050	0.91	1.64	4249	3866	0.91	1.75
32	22	4950	3911	0.79	1.56	4750	3753	0.79	1.68	4543	3589	0.79	1.81

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<3>**  
**PKH-2FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		20				25				30			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	5549	3385	0.61	1.82	5397	3292	0.61	1.90	5198	3171	0.61	2.04
20	18	5908	2895	0.49	1.86	5752	2819	0.49	1.94	5543	2716	0.49	2.09
20	20	6271	2320	0.37	1.89	6124	2266	0.37	1.97	5905	2185	0.37	2.13
22	16	5549	3829	0.69	1.82	5397	3724	0.69	1.90	5198	3587	0.69	2.04
22	18	5908	3367	0.57	1.86	5752	3279	0.57	1.94	5543	3159	0.57	2.09
22	20	6271	2822	0.45	1.89	6124	2756	0.45	1.97	5905	2657	0.45	2.13
24	16	5549	4272	0.77	1.82	5397	4155	0.77	1.90	5198	4003	0.77	2.04
24	18	5908	3840	0.65	1.86	5752	3739	0.65	1.94	5543	3603	0.65	2.09
24	20	6271	3324	0.53	1.89	6124	3245	0.53	1.97	5905	3130	0.53	2.13
24	22	6638	2722	0.41	1.93	6511	2669	0.41	2.01	6285	2577	0.41	2.18
26	16	5549	4716	0.85	1.82	5397	4587	0.85	1.90	5198	4419	0.85	2.04
26	18	5908	4313	0.73	1.86	5752	4199	0.73	1.94	5543	4046	0.73	2.09
26	20	6271	3825	0.61	1.89	6124	3735	0.61	1.97	5905	3602	0.61	2.13
26	22	6638	3253	0.49	1.93	6511	3190	0.49	2.01	6285	3080	0.49	2.18
27	16	5549	4938	0.89	1.82	5397	4803	0.89	1.90	5198	4627	0.89	2.04
27	18	5908	4549	0.77	1.86	5752	4429	0.77	1.94	5543	4268	0.77	2.09
27	20	6271	4076	0.65	1.89	6124	3980	0.65	1.97	5905	3838	0.65	2.13
27	22	6638	3518	0.53	1.93	6511	3451	0.53	2.01	6285	3331	0.53	2.18
28	16	5549	5160	0.93	1.82	5397	5019	0.93	1.90	5198	4835	0.93	2.04
28	18	5908	4785	0.81	1.86	5752	4659	0.81	1.94	5543	4490	0.81	2.09
28	20	6271	4327	0.69	1.89	6124	4225	0.69	1.97	5905	4074	0.69	2.13
28	22	6638	3784	0.57	1.93	6511	3711	0.57	2.01	6285	3583	0.57	2.18
30	16	5549	5549	1.00	1.82	5397	5397	1.00	1.90	5198	5198	1.00	2.04
30	18	5908	5258	0.89	1.86	5752	5119	0.89	1.94	5543	4933	0.89	2.09
30	20	6271	4829	0.77	1.89	6124	4715	0.77	1.97	5905	4547	0.77	2.13
30	22	6638	4315	0.65	1.93	6511	4232	0.65	2.01	6285	4085	0.65	2.18
32	16	5549	5549	1.00	1.82	5397	5397	1.00	1.90	5198	5198	1.00	2.04
32	18	5908	5731	0.97	1.86	5752	5580	0.97	1.94	5543	5376	0.97	2.09
32	20	6271	5330	0.85	1.89	6124	5205	0.85	1.97	5905	5019	0.85	2.13
32	22	6638	4846	0.73	1.93	6511	4753	0.73	2.01	6285	4588	0.73	2.18

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<4>**  
**PKH-2FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		35				40				45			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	4988	3043	0.61	2.19	4765	2907	0.61	2.34	4530	2763	0.61	2.49
20	18	5323	2608	0.49	2.24	5093	2495	0.49	2.40	4852	2378	0.49	2.55
20	20	5677	2101	0.37	2.30	5440	2013	0.37	2.46	5193	1921	0.37	2.63
22	16	4988	3442	0.69	2.19	4765	3288	0.69	2.34	4530	3125	0.69	2.49
22	18	5323	3034	0.57	2.24	5093	2903	0.57	2.40	4852	2766	0.57	2.55
22	20	5677	2555	0.45	2.30	5440	2448	0.45	2.46	5193	2337	0.45	2.63
24	16	4988	3841	0.77	2.19	4765	3669	0.77	2.34	4530	3488	0.77	2.49
24	18	5323	3460	0.65	2.24	5093	3310	0.65	2.40	4852	3154	0.65	2.55
24	20	5677	3009	0.53	2.30	5440	2883	0.53	2.46	5193	2752	0.53	2.63
24	22	6050	2481	0.41	2.35	5806	2380	0.41	2.53	5552	2276	0.41	2.71
26	16	4988	4240	0.85	2.19	4765	4050	0.85	2.34	4530	3850	0.85	2.49
26	18	5323	3886	0.73	2.24	5093	3718	0.73	2.40	4852	3542	0.73	2.55
26	20	5677	3463	0.61	2.30	5440	3318	0.61	2.46	5193	3168	0.61	2.63
26	22	6050	2965	0.49	2.35	5806	2845	0.49	2.53	5552	2721	0.49	2.71
27	16	4988	4439	0.89	2.19	4765	4241	0.89	2.34	4530	4031	0.89	2.49
27	18	5323	4099	0.77	2.24	5093	3921	0.77	2.40	4852	3736	0.77	2.55
27	20	5677	3690	0.65	2.30	5440	3536	0.65	2.46	5193	3376	0.65	2.63
27	22	6050	3207	0.53	2.35	5806	3077	0.53	2.53	5552	2943	0.53	2.71
28	16	4988	4639	0.93	2.19	4765	4431	0.93	2.34	4530	4213	0.93	2.49
28	18	5323	4312	0.81	2.24	5093	4125	0.81	2.40	4852	3930	0.81	2.55
28	20	5677	3917	0.69	2.30	5440	3753	0.69	2.46	5193	3583	0.69	2.63
28	22	6050	3449	0.57	2.35	5806	3309	0.57	2.53	5552	3165	0.57	2.71
30	16	4988	4988	1.00	2.19	4765	4765	1.00	2.34	4530	4560	1.00	2.49
30	18	5323	4737	0.89	2.24	5093	4533	0.89	2.40	4852	4318	0.89	2.55
30	20	5677	4371	0.77	2.30	5440	4189	0.77	2.46	5193	3999	0.77	2.63
30	22	6050	3933	0.65	2.35	5806	3774	0.65	2.53	5552	3609	0.65	2.71
32	16	4988	4988	1.00	2.19	4765	4765	1.00	2.34	4530	4530	1.00	2.49
32	18	5323	5163	0.97	2.24	5093	4940	0.97	2.40	4852	4707	0.97	2.55
32	20	5677	4826	0.85	2.30	5440	4624	0.85	2.46	5193	4414	0.85	2.63
32	22	6050	4417	0.73	2.35	5806	4238	0.73	2.53	5552	4053	0.73	2.71

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<5>**  
**PKH-2.5FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		20				25				30			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	6557	4787	0.73	2.05	6378	4656	0.73	2.14	6144	4485	0.73	2.30
20	18	6982	4259	0.61	2.09	6798	4147	0.61	2.18	6551	3996	0.61	2.36
20	20	7411	3631	0.49	2.13	7237	3546	0.49	2.23	6979	3420	0.49	2.41
22	16	6557	5312	0.81	2.05	6378	5166	0.81	2.14	6144	4976	0.81	2.30
22	18	6982	4818	0.69	2.09	6798	4691	0.69	2.18	6551	4520	0.69	2.36
22	20	7411	4224	0.57	2.13	7237	4125	0.57	2.23	6979	3978	0.57	2.41
24	16	6557	5836	0.89	2.05	6378	5676	0.89	2.14	6144	5468	0.89	2.30
24	18	6982	5376	0.77	2.09	6798	5235	0.77	2.18	6551	5044	0.77	2.36
24	20	7411	4817	0.65	2.13	7237	4704	0.65	2.23	6979	4536	0.65	2.41
24	22	7845	4158	0.53	2.17	7694	4078	0.53	2.27	7428	3937	0.53	2.46
26	16	6557	6361	0.97	2.05	6378	6187	0.97	2.14	6144	5959	0.97	2.30
26	18	6982	5936	0.85	2.09	6798	5778	0.85	2.18	6551	5568	0.85	2.36
26	20	7411	5412	0.73	2.13	7237	5283	0.73	2.23	6979	5094	0.73	2.41
26	22	7845	4785	0.61	2.17	7694	4694	0.61	2.27	7428	4531	0.61	2.46
27	16	6557	6557	1.00	2.05	6378	6378	1.00	2.14	6144	6144	1.00	2.30
27	18	6982	6214	0.89	2.09	6798	6050	0.89	2.18	6551	5830	0.89	2.36
27	20	7411	5707	0.77	2.13	7237	5572	0.77	2.23	6979	5374	0.77	2.41
27	22	7845	5099	0.65	2.17	7694	5001	0.65	2.27	7428	4828	0.65	2.46
28	16	6557	6557	1.00	2.05	6378	6378	1.00	2.14	6144	6144	1.00	2.30
28	18	6982	6493	0.93	20.9	6798	6322	0.93	2.18	6551	6092	0.93	2.36
28	20	7411	6003	0.81	2.13	7237	5862	0.81	2.23	6979	5653	0.81	2.41
28	22	7845	5413	0.69	2.17	7694	5309	0.69	2.27	7428	5125	0.69	2.46
30	16	6557	6557	1.00	2.05	6378	6378	1.00	2.14	6144	6144	1.00	2.30
30	18	6982	6982	1.00	20.9	6798	6798	1.00	2.18	6551	6551	1.00	2.36
30	20	7411	6596	0.89	2.13	7237	6441	0.89	2.23	6979	6211	0.89	2.41
30	22	7845	6040	0.77	2.17	7694	5925	0.77	2.27	7428	5719	0.77	2.46
32	16	6557	6557	1.00	2.05	6378	6378	1.00	2.14	6144	6144	1.00	2.30
32	18	6982	6982	1.00	20.9	6798	6798	1.00	2.18	6551	6551	1.00	2.36
32	20	7411	7189	0.97	2.13	7237	7020	0.97	2.23	6979	6769	0.97	2.41
32	22	7845	6668	0.85	2.17	7694	6540	0.85	2.27	7428	6314	0.85	2.46

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<6>**  
**PKH-2.5FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		35				40				45			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	5895	4303	0.73	2.47	5631	4111	0.73	2.64	5353	3908	0.73	2.80
20	18	6291	3837	0.61	2.53	6019	3671	0.61	2.70	5734	3498	0.61	2.88
20	20	6709	3288	0.49	2.59	6429	3150	0.49	2.78	6137	3007	0.49	2.96
22	16	5895	4775	0.81	2.47	5631	4561	0.81	2.64	5353	4336	0.81	2.80
22	18	6291	4341	0.69	2.53	6019	4153	0.69	2.70	5734	3957	0.69	2.88
22	20	6709	3824	0.57	2.59	6429	3664	0.57	2.78	6137	3498	0.57	2.96
24	16	5895	5246	0.89	2.47	5631	5012	0.89	2.64	5353	4764	0.89	2.80
24	18	6291	4844	0.77	2.53	6019	4634	0.77	2.70	5734	4415	0.77	2.88
24	20	6709	4361	0.65	2.59	6429	4179	0.65	2.78	6137	3989	0.65	2.96
24	22	7150	3790	0.53	2.65	6862	3637	0.53	2.85	6562	3478	0.53	3.06
26	16	5895	5718	0.97	2.47	5631	5462	0.97	2.64	5353	5193	0.97	2.80
26	18	6291	5347	0.85	2.53	6019	5116	0.85	2.70	5734	4874	0.85	2.88
26	20	6709	4898	0.73	2.59	6429	4693	0.73	2.78	6137	4480	0.73	2.96
26	22	7150	4362	0.61	2.65	6862	4186	0.61	2.85	6562	4003	0.61	3.06
27	16	5895	5895	1.00	2.47	5631	5631	1.00	2.64	5353	5353	1.00	2.80
27	18	6291	5599	0.89	2.53	6019	5357	0.89	2.70	5734	5104	0.89	2.88
27	20	6709	5166	0.77	2.59	6429	4950	0.77	2.78	6137	4726	0.77	2.96
27	22	7150	4648	0.65	2.65	6862	4460	0.65	2.85	6562	4265	0.65	3.06
28	16	5895	5895	1.00	2.47	5631	5631	1.00	2.64	5353	5353	1.00	2.80
28	18	6291	5850	0.93	2.53	6019	5597	0.93	2.70	5734	5333	0.93	2.88
28	20	6709	5435	0.81	2.59	6429	5207	0.81	2.78	6137	4971	0.81	2.96
28	22	7150	4934	0.69	2.65	6862	4735	0.69	2.85	6562	4528	0.69	3.06
30	16	5895	5895	1.00	2.47	5631	5631	1.00	2.64	5353	5353	1.00	2.80
30	18	6291	6291	1.00	2.53	6019	6019	1.00	2.70	5734	5734	1.00	2.88
30	20	6709	5971	0.89	2.59	6429	5722	0.89	2.78	6137	5462	0.89	2.96
30	22	7150	5506	0.77	2.65	6862	5283	0.77	2.85	6562	5053	0.77	3.06
32	16	5895	5895	1.00	2.47	5631	5631	1.00	2.64	5353	5353	1.00	2.80
32	18	6291	6291	1.00	2.53	6019	6019	1.00	2.70	5734	5734	1.00	2.88
32	20	6709	6508	0.97	2.59	6429	6236	0.97	2.78	6137	5953	0.97	2.96
32	22	7150	6078	0.85	2.65	6862	5832	0.85	2.85	6562	5578	0.85	3.06

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<7>**  
**PKH-3FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		20				25				30			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	7970	5101	0.64	2.60	7752	4961	0.64	2.72	7467	4779	0.64	2.92
20	18	8486	4413	0.52	2.66	8262	4296	0.52	2.77	7961	4140	0.52	2.99
20	20	9007	3603	0.40	2.71	8796	3518	0.40	2.83	8482	3393	0.40	3.06
22	16	7970	5738	0.72	2.60	7752	5581	0.72	2.72	7467	5376	0.72	2.92
22	18	8486	5091	0.60	2.66	8262	4957	0.60	2.77	7961	4777	0.60	2.99
22	20	9007	4323	0.48	2.71	8796	4222	0.48	2.83	8482	4071	0.48	3.06
24	16	7970	6376	0.80	2.60	7752	6201	0.80	2.72	7467	5973	0.80	2.92
24	18	8486	5770	0.68	2.66	8262	5618	0.68	2.77	7961	5414	0.68	2.99
24	20	9007	5044	0.56	2.71	8796	4926	0.56	2.83	8482	4750	0.56	3.06
24	22	9534	4195	0.44	2.76	9352	4115	0.44	2.88	9028	3972	0.44	3.12
26	16	7970	7013	0.88	2.60	7752	6821	0.88	2.72	7467	6571	0.88	2.92
26	18	8486	6449	0.76	2.66	8262	6279	0.76	2.77	7961	6051	0.76	2.99
26	20	9007	5765	0.64	2.71	8796	5629	0.64	2.83	8482	5428	0.64	3.06
26	22	9534	4958	0.52	2.76	9352	4863	0.52	2.88	9028	4694	0.52	3.12
27	16	7970	7332	0.92	2.60	7752	7132	0.92	2.72	7467	6869	0.92	2.92
27	18	8486	6789	0.80	2.66	8262	6610	0.80	2.77	7961	6369	0.80	2.99
27	20	9007	6125	0.68	2.71	8796	5981	0.68	2.83	8482	5768	0.68	3.06
27	22	9534	5339	0.56	2.76	9352	5237	0.56	2.88	9028	5056	0.56	3.12
28	16	7970	7651	0.96	2.60	7752	7442	0.96	2.72	7467	7168	0.96	2.92
28	18	8486	7128	0.84	2.66	8262	6940	0.84	2.77	7961	6688	0.84	2.99
28	20	9007	6485	0.72	2.71	8796	6333	0.72	2.83	8482	6107	0.72	3.06
28	22	9534	5721	0.60	2.76	9352	5611	0.60	2.88	9028	5417	0.60	3.12
30	16	7970	7970	1.00	2.60	7752	7752	1.00	2.72	7467	7467	1.00	2.92
30	18	8486	7807	0.92	2.66	8262	7601	0.92	2.77	7961	7325	0.92	2.99
30	20	9007	7206	0.80	2.71	8796	7037	0.80	2.83	8482	6785	0.80	3.06
30	22	9534	6483	0.68	2.76	9352	6359	0.68	2.88	9028	6139	0.68	3.12
32	16	7970	7970	1.00	2.60	7752	7752	1.00	2.72	7467	7467	1.00	2.92
32	18	8486	8486	1.00	2.66	8262	8262	1.00	2.77	7961	7961	1.00	2.99
32	20	9007	7926	0.88	2.71	8796	7740	0.88	2.83	8482	7464	0.88	3.06
32	22	9534	7246	0.76	2.76	9352	7107	0.76	2.88	9028	6861	0.76	3.12

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<8>**  
**PKH-3FKA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		35				40				45			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	7164	4585	0.64	3.13	6844	4380	0.64	3.35	6506	4164	0.64	3.56
20	18	7646	3976	0.52	3.21	7315	3804	0.52	3.43	6970	3624	0.52	3.65
20	20	8154	3262	0.40	3.29	7813	3125	0.40	3.52	7459	2984	0.40	3.76
22	16	7164	5158	0.72	3.13	6844	4928	0.72	3.35	6506	4685	0.72	3.56
22	18	7646	4587	0.60	3.21	7315	4389	0.60	3.43	6970	4182	0.60	3.65
22	20	8154	3914	0.48	3.29	7813	3750	0.48	3.52	7459	3580	0.48	3.76
24	16	7164	5731	0.80	3.13	6844	5475	0.80	3.35	6506	5205	0.80	3.56
24	18	7646	5199	0.68	3.21	7315	4974	0.68	3.43	6970	4739	0.68	3.65
24	20	8154	4566	0.56	3.29	7813	4376	0.56	3.52	7459	4177	0.56	3.76
24	22	8690	3824	0.44	3.37	8339	3669	0.44	3.62	7975	3509	0.44	3.89
26	16	7164	6305	0.88	3.13	6844	6023	0.88	3.35	6506	5726	0.88	3.56
26	18	7646	5811	0.76	3.21	7315	5559	0.76	3.43	6970	5297	0.76	3.65
26	20	8154	5219	0.64	3.29	7813	5001	0.64	3.52	7459	4774	0.64	3.76
26	22	8690	4519	0.52	3.37	8339	4337	0.52	3.62	7975	4147	0.52	3.89
27	16	7164	6591	0.92	3.13	6844	6297	0.92	3.35	6506	5986	0.92	3.56
27	18	7646	6117	0.80	3.21	7315	5852	0.80	3.43	6970	5576	0.80	3.65
27	20	8154	5545	0.68	3.29	7813	5313	0.68	3.52	7459	5072	0.68	3.76
27	22	8690	4867	0.56	3.37	8339	4670	0.56	3.62	7975	4466	0.56	3.89
28	16	7164	6878	0.96	3.13	6844	6570	0.96	3.35	6506	6246	0.96	3.56
28	18	7646	6422	0.84	3.21	7315	6145	0.84	3.43	6970	5854	0.84	3.65
28	20	8154	5871	0.72	3.29	7813	5626	0.72	3.52	7459	5371	0.72	3.76
28	22	8690	5214	0.60	3.37	8339	5004	0.60	3.62	7975	4785	0.60	3.89
30	16	7164	7164	1.00	3.13	6844	6844	1.00	3.35	6506	6506	1.00	3.56
30	18	7646	7034	0.92	3.21	7315	6730	0.92	3.43	6970	6412	0.92	3.65
30	20	8154	6523	0.80	3.29	7813	6251	0.80	3.52	7459	5967	0.80	3.76
30	22	8690	5909	0.68	3.37	8339	5671	0.68	3.62	7975	5423	0.68	3.89
32	16	7164	7164	1.00	3.13	6844	6844	1.00	3.35	6506	6506	1.00	3.56
32	18	7646	7646	1.00	3.21	7315	7315	1.00	3.43	6970	6970	1.00	3.65
32	20	8154	7176	0.88	3.29	7813	6876	0.88	3.52	7459	6564	0.88	3.76
32	22	8690	6605	0.76	3.37	8339	6338	0.76	3.62	7975	6061	0.76	3.89

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<9>**  
**PKH-4FKSA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		20				25				30			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	9584	6709	0.70	2.65	9322	6525	0.70	2.77	8979	6285	0.70	2.98
20	18	10204	5919	0.58	2.71	9936	5763	0.58	2.82	9574	5553	0.58	3.05
20	20	10832	4983	0.46	2.76	10577	4865	0.46	2.88	10200	4692	0.46	3.11
22	16	9584	7476	0.78	2.65	9322	7271	0.78	2.77	8979	7004	0.78	2.98
22	18	10204	6735	0.66	2.71	9936	6558	0.66	2.82	9574	6319	0.66	3.05
22	20	10832	5849	0.54	2.76	10577	5712	0.54	2.88	10200	5508	0.54	3.11
24	16	9584	8242	0.86	2.65	9322	8017	0.86	2.77	8979	7722	0.86	2.98
24	18	10204	7551	0.74	2.71	9936	7352	0.74	2.82	9574	7085	0.74	3.05
24	20	10832	6716	0.62	2.76	10577	6558	0.62	2.88	10200	6324	0.62	3.11
24	22	11465	5733	0.50	2.81	11246	5623	0.50	2.94	10856	5428	0.50	3.18
26	16	9584	9009	0.94	2.65	9322	8762	0.94	2.77	8979	8440	0.94	2.98
26	18	10204	8368	0.82	2.71	9936	8147	0.82	2.82	9574	7851	0.82	3.05
26	20	10832	7582	0.70	2.76	10577	7404	0.70	2.88	10200	7140	0.70	3.11
26	22	11465	6650	0.58	2.81	11246	6522	0.58	2.94	10856	6297	0.58	3.18
27	16	9584	9392	0.98	2.65	9322	9135	0.98	2.77	8979	8800	0.98	2.98
27	18	10204	8776	0.86	2.71	9936	8545	0.86	2.82	9574	8234	0.86	3.05
27	20	10832	8015	0.74	2.76	10577	7827	0.74	2.88	10200	7548	0.74	3.11
27	22	11465	7109	0.62	2.81	11246	6972	0.62	2.94	10856	6731	0.62	3.18
28	16	9584	9584	1.00	2.65	9322	9322	1.00	2.77	8979	8979	1.00	2.98
28	18	10204	9184	0.90	2.71	9936	8942	0.90	2.82	9574	8616	0.90	3.05
28	20	10832	8449	0.78	2.76	10577	8250	0.78	2.88	10200	7959	0.78	3.11
28	22	11465	7567	0.66	2.81	11246	7422	0.66	2.94	10856	7165	0.66	3.18
30	16	9584	9584	1.00	2.65	9322	9322	1.00	2.77	8979	8979	1.00	2.98
30	18	10204	10000	0.98	2.71	9936	9737	0.98	2.82	9574	9382	0.98	3.05
30	20	10832	9315	0.86	2.76	10577	9096	0.86	2.88	10200	8772	0.86	3.11
30	22	11465	8484	0.74	2.81	11246	8322	0.74	2.94	10856	8034	0.74	3.18
32	16	9584	9584	1.00	2.65	9322	9322	1.00	2.77	8979	8979	1.00	2.98
32	18	10204	10204	1.00	2.71	9936	9936	1.00	2.82	9574	9574	1.00	3.05
32	20	10832	10182	0.94	2.76	10577	9942	0.94	2.88	10200	9588	0.94	3.11
32	22	11465	9402	0.82	2.81	11246	9221	0.82	2.94	10856	8902	0.82	3.18

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

**COOLING CAPACITY<10>**  
**PKH-4FKSA-E**

Indoor Intake air °C DB	Indoor Intake air °C WB	Outdoor intake air °C DB											
		35				40				45			
		CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.	CA	SHC(W)	SHF	P.C.
20	16	8615	6031	0.70	3.19	8230	5761	0.70	3.41	7824	5477	0.70	3.62
20	18	9194	5333	0.58	3.27	8797	5102	0.58	3.49	8381	4861	0.58	3.72
20	20	9806	4511	0.46	3.35	9396	4322	0.46	3.59	8970	4126	0.46	3.83
22	16	8615	6720	0.78	3.19	8230	6420	0.78	3.41	7824	6103	0.78	3.62
22	18	9194	6068	0.66	3.27	8797	5806	0.66	3.49	8381	5532	0.66	3.72
22	20	9806	5295	0.54	3.35	9396	5074	0.54	3.59	8970	4844	0.54	3.83
24	16	8615	7409	0.86	3.19	8230	7078	0.86	3.41	7824	6729	0.86	3.62
24	18	9194	6804	0.74	3.27	8797	6509	0.74	3.49	8381	6202	0.74	3.72
24	20	9806	6080	0.62	3.35	9396	5825	0.62	3.59	8970	5561	0.62	3.83
24	22	10450	5225	0.50	3.43	10028	5014	0.50	3.69	9590	4795	0.50	3.96
26	16	8615	8098	0.94	3.19	8230	7736	0.94	3.41	7824	7355	0.94	3.62
26	18	9194	7539	0.82	3.27	8797	7213	0.82	3.49	8381	6872	0.82	3.72
26	20	9806	6864	0.70	3.35	9396	6577	0.70	3.59	8970	6279	0.70	3.83
26	22	10450	6061	0.58	3.43	10028	5817	0.58	3.69	9590	5562	0.58	3.96
27	16	8615	8443	0.98	3.19	8230	8066	0.98	3.41	7824	7668	0.98	3.62
27	18	9194	7907	0.86	3.27	8797	7565	0.86	3.49	8381	7208	0.86	3.72
27	20	9806	7256	0.74	3.35	9396	6953	0.74	3.59	8970	6638	0.74	3.83
27	22	10450	6479	0.62	3.43	10028	6218	0.62	3.69	9590	5946	0.62	3.96
28	16	8615	8615	1.00	3.19	8230	8230	1.00	3.41	7824	7824	1.00	3.62
28	18	9194	8275	0.90	3.27	8797	7917	0.90	3.49	8381	7543	0.90	3.72
28	20	9806	7649	0.78	3.35	9396	7329	0.78	3.59	8970	6997	0.78	3.83
28	22	10450	6897	0.66	3.43	10028	6619	0.66	3.69	9590	6330	0.66	3.96
30	16	8615	8615	1.00	3.19	8230	8230	1.00	3.41	7824	7824	1.00	3.62
30	18	9194	9010	0.98	3.27	8797	8621	0.98	3.49	8381	8213	0.98	3.72
30	20	9806	8433	0.86	3.35	9396	8081	0.86	3.59	8970	7714	0.86	3.83
30	22	10450	7733	0.74	3.43	10028	7421	0.74	3.69	9590	7097	0.74	3.96
32	16	8615	8615	1.00	3.19	8230	8230	1.00	3.41	7824	7824	1.00	3.62
32	18	9194	9194	1.00	3.27	8797	8797	1.00	3.49	8381	8381	1.00	3.72
32	20	9806	9217	0.94	3.35	9396	8832	0.94	3.59	8970	8432	0.94	3.83
32	22	10450	8569	0.82	3.43	10028	8223	0.82	3.69	9590	7864	0.82	3.96

Notes CA : Capacity (W)  
P.C. : Power consumption (kW)

SHC(W) : Sensible heat capacity  
SHF : Sensible heat factor

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#### Cooling capacity correction factors

Service Ref.	Refrigerant piping length(one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PKH-1.6FKA-E	1.00	0.093	0.984	0.978	0.969	0.961	0.956	0.948	—	—
PKH-2FKA-E	1.00	0.992	0.983	0.978	0.966	0.959	0.950	0.945	—	—
PKH-2.5FKA-E	1.00	0.989	0.980	0.970	0.960	0.950	0.940	0.930	0.920	0.910
PKH-3FKA-E	1.00	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PKH-4FKSA-E	1.00	0.989	0.980	0.970	0.960	0.950	0.940	0.930	0.920	0.910

#### 2) HEATING CAPACITY

Service Ref.	Indoor intake air °C DB	Outdoor intake air °C WB											
		-10		-5		0		5		10		15	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PKH-1.6FKA-E	15	3,184	1.01	3,650	1.12	4,160	1.23	4,714	1.35	5,312	1.48	5,952	1.61
	20	3,049	1.09	3,506	1.20	4,003	1.32	4,538	1.45	5,112	1.59	5,724	1.73
	25	2,930	1.15	3,364	1.28	3,844	1.42	4,370	1.56	4,942	1.70	5,560	1.86
PKH-2FKA-E	15	4,280	1.56	4,905	1.73	5,591	1.90	6,336	2.09	7,139	2.28	8,000	2.49
	20	4,098	1.68	4,713	1.86	5,380	2.05	6,100	2.25	6,871	2.46	7,693	2.68
	25	3,939	1.79	4,521	1.98	5,167	2.19	5,874	2.41	6,643	2.64	7,473	2.87
PKH-2.5FKA-E	15	4,931	1.59	5,651	1.76	6,441	1.93	7,229	2.12	8,225	2.32	9,216	2.53
	20	4,721	1.71	5,429	1.89	6,198	2.09	7,027	2.29	7,916	2.50	8,863	2.73
	25	4,537	1.82	5,209	2.02	5,952	2.23	6,767	2.45	7,653	2.68	8,609	2.92
PKH-3FKA-E	15	6,232	2.07	7,142	2.29	8,141	2.52	9,225	2.77	10,395	3.03	11,648	3.30
	20	5,967	2.23	6,862	2.47	7,834	2.72	8,881	2.99	10,004	3.26	11,201	3.56
	25	5,735	2.37	6,583	2.63	7,523	2.91	8,553	3.20	9,672	3.50	10,881	3.82
PKH-4FKSA-E	15	7,328	2.25	8,398	2.49	9,572	2.74	10,847	3.01	12,223	3.29	13,696	3.59
	20	7,016	2.43	8,068	2.68	9,211	2.95	10,443	3.24	11,763	3.54	13,171	3.86
	25	6,743	2.58	7,741	2.86	8,845	3.16	10,056	3.47	11,373	3.80	12,794	4.14

Note CA : Capacity (W)

P.C. : Power consumption (kW)

#### Heating capacity correction factors

Service Ref.	Refrigerant piping length(one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PKH-1.6FKA-E	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	—	—
PKH-2FKA-E	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	—	—
PKH-2.5FKA-E	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PKH-3FKA-E	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PKH-4FKSA-E	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990

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## 2. ELECTRICAL DATA

Indoor unit . . . . . 220V 50Hz 1phase

Outdoor unit . . . . . 220V 50Hz 1phase / 380V 50Hz 3phase

Service Ref.		Indoor unit	PKH-1.6FKA-E	PKH-2FKA-E	PKH-2.5FKA-E	PKH-3FKA-E				PKH-4FKSA-E	
		Outdoor unit	PUH-1.6VKA3.UK	PUH-2VKA2.UK	PUH-2.5VKA2.UK	PUH-3VKA2.UK	PUH-3YKA2.UK	PUH-4YKSA2.UK			
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity(W)		4,400	4,550	5,400	6,150	6,400	7,100	7,800	9,000	7,800	9,000
Total Input(kW)		1.43	1.39	2.19	2.21	2.51	2.26	3.23	3.02	3.23	3.02
Indoor unit	Input(kW)	0.07	0.07	0.07	0.07	0.095	0.095	0.095	0.095	0.095	0.114
Indoor unit	Current(A)	0.32	0.32	0.32	0.32	0.44	0.44	0.44	0.44	0.44	0.53
Indoor unit	Starting current(A)	0.40	0.40	0.40	0.40	0.70	0.70	0.70	0.70	0.70	0.80
Outdoor unit	Input(kW)	1.36	1.32	2.12	2.14	2.41	2.16	3.13	2.92	3.13	3.17
Outdoor unit	Current(A)	6.79	6.59	9.83	9.93	11.18	10.02	14.67	13.68	5.23	4.88
Outdoor unit	Starting current(A)	30	30	43	43	52	52	54	54	34	37

Indoor unit . . . . . 230V 50Hz 1phase

Outdoor unit . . . . . 230V 50Hz 1phase / 400V 50Hz 3phase

Service Ref.		Indoor unit	PKH-1.6FKA-E	PKH-2FKA-E	PKH-2.5FKA-E	PKH-3FKA-E				PKH-4FKSA-E	
		Outdoor unit	PUH-1.6VKA3.UK	PUH-2VKA2.UK	PUH-2.5VKA2.UK	PUH-3VKA2.UK	PUH-3YKA2.UK	PUH-4YKSA2.UK			
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity(W)		4,450	4,600	5,450	6,200	6,450	7,150	7,850	9,050	7,850	9,050
Total Input(kW)		1.47	1.43	2.23	2.25	2.54	2.30	3.24	3.03	3.24	3.03
Indoor unit	Input(kW)	0.07	0.07	0.07	0.07	0.095	0.095	0.095	0.095	0.095	0.114
Indoor unit	Current(A)	0.32	0.32	0.32	0.32	0.44	0.44	0.44	0.44	0.44	0.53
Indoor unit	Starting current(A)	0.40	0.40	0.40	0.40	0.80	0.80	0.80	0.80	0.80	0.90
Outdoor unit	Input(kW)	1.40	1.36	2.16	2.18	2.44	2.20	3.14	2.93	3.14	2.93
Outdoor unit	Current(A)	6.76	6.57	9.78	9.87	10.94	9.86	14.22	13.27	5.21	4.86
Outdoor unit	Starting current(A)	32	32	44	44	52	52	56	56	36	39

Indoor unit . . . . . 240V 50Hz 1phase

Outdoor unit . . . . . 240V 50Hz 1phase / 415V 50Hz 3phase

Service Ref.		Indoor unit	PKH-1.6FKA-E	PKH-2FKA-E	PKH-2.5FKA-E	PKH-3FKA-E				PKH-4FKSA-E	
		Outdoor unit	PUH-1.6VKA3.UK	PUH-2VKA2.UK	PUH-2.5VKA2.UK	PUH-3VKA2.UK	PUH-3YKA2.UK	PUH-4YKSA2.UK			
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity(W)		4,500	4,650	5,500	6,250	6,500	7,200	7,900	9,100	7,900	9,100
Total Input(kW)		1.51	1.48	2.27	2.29	2.56	2.33	3.25	3.04	3.25	3.04
Indoor unit	Input(kW)	0.07	0.07	0.07	0.07	0.095	0.095	0.095	0.095	0.095	0.114
Indoor unit	Current(A)	0.32	0.32	0.32	0.32	0.44	0.44	0.44	0.44	0.44	0.53
Indoor unit	Starting current(A)	0.40	0.40	0.40	0.40	0.80	0.80	0.80	0.80	0.80	0.90
Outdoor unit	Input(kW)	1.44	1.41	2.20	2.22	2.46	2.23	3.15	2.94	3.15	2.94
Outdoor unit	Current(A)	6.74	6.60	9.86	9.95	10.68	9.78	13.82	12.89	5.16	4.81
Outdoor unit	Starting current(A)	33	33	45	45	52	52	58	58	37	40

### 3. STANDARD OPERATION DATA

Service Ref.			PKH-1.6FKA-E		PKH-2FKA-E		PKH-2.5FKA-E		PKH-3FKA-E				PKH-4FKSA-E	
Mode			Cooling	Heating										
Total	Capacity	W	4,500	4,650	5,500	6,250	6,500	7,200	7,900	9,100	7,900	9,100	9,500	10,700
	Input	kW	1.51	1.48	2.27	2.29	2.56	2.33	3.25	3.04	3.25	3.04	3.31	3.30
Electrical circuit	Indoor unit Service Ref.		PKH-1.6FKA-E		PKH-2FKA-E		PKH-2.5FKA-E		PKH-3FKA-E				PKH-4FKSA-E	
	Phase,Hz		1,50		1,50		1,50		1,50				1,50	
	Volts		240		240		240		240				240	
	Amperes		0.32	0.32	0.32	0.32	0.44	0.44	0.44	0.44	0.44	0.44	0.53	0.53
	Outdoor unit Service Ref.		PUH-1.6VKA3.UK		PUH-2VKA2.UK		PUH-2.5VKA2.UK		PUH-3VKA2.UK		PUH-3YKA2.UK		PUH-4YKSA2.UK	
	Phase,Hz		1,50		1,50		1,50		1,50		3,50		3,50	
	Volts		240		240		240		240		415		415	
Refrigetant circuit	Amperes		6.74	6.60	9.86	9.95	10.68	9.78	13.82	12.89	5.16	4.81	5.24	5.22
	Discharge pressure	Mpa (kg/cm <sup>2</sup> )	1.74 (17.7)	1.72 (17.5)	1.87 (19.1)	1.99 (20.3)	2.00 (20.4)	1.62 (16.5)	2.07 (21.1)	1.96 (20.0)	2.07 (21.1)	1.96 (20.0)	1.80 (18.4)	1.69 (17.2)
	Suction pressure	Mpa (kg/cm <sup>2</sup> )	0.52 (5.3)	0.41 (4.18)	0.42 (4.28)	0.36 (3.67)	0.52 (5.3)	0.36 (3.67)	0.45 (4.59)	0.37 (3.77)	0.45 (4.59)	0.35 (3.57)	0.51 (5.2)	0.37 (3.77)
	Discahrge temperature	°C	77	78	86	90	85	74	90	86	90	86	79	76
	Condensing temperature	°C	47	47	51	53	53	44	53	52	53	52	49	46
	Suction temperature	°C	8	1	2	-2	7	-3	6	-2	6	-2	8	-1
	Ref.pipe length	m	5	5	5	5	5	5	5	5	5	5	5	5
Indoor side	Intake air temperature	°C DB	27	20	27	20	27	20	27	20	27	20	27	20
		°C WB	19	15	19	15	19	15	19	15	19	15	19	15
Outdoor side	Discharge air temperature	°C DB	14.6	38.9	13.0	44.3	14.5	37.9	13.2	43.4	13.2	43.4	14.3	40.4
		°C DB	35	7	35	7	35	7	35	7	35	7	35	7
	Intake air temperature	°C WB	24	6	24	6	24	6	24	6	24	6	24	6
		SHF	0.77	—	0.71	—	0.83	—	0.74	—	0.74	—	0.80	—
BF			0.17	—	0.15	—	0.11	—	0.12	—	0.12	—	0.11	—

The unit of pressure has been changed to Mpa on the international system of unit (SI unit system).

The converted score against the traditional unit system can be gotten according to the formula below.

$$1(\text{Mpa}) = 10.2(\text{kg/cm}^2)$$

### 4. OUTLET AIR SPEED AND COVERAGE RANGE

	PKH-1.6FKA-E	PKH-2FKA-E	PKH-2.5FKA-E	PKH-3FKA-E	PKH-4FKSA-E
Air flow m <sup>3</sup> /min	13	13	20	20	28
Air speed m/sec	4.0	4.0	4.9	4.9	5.4
Coverage range m	9.1	9.1	12.4	12.4	15.3

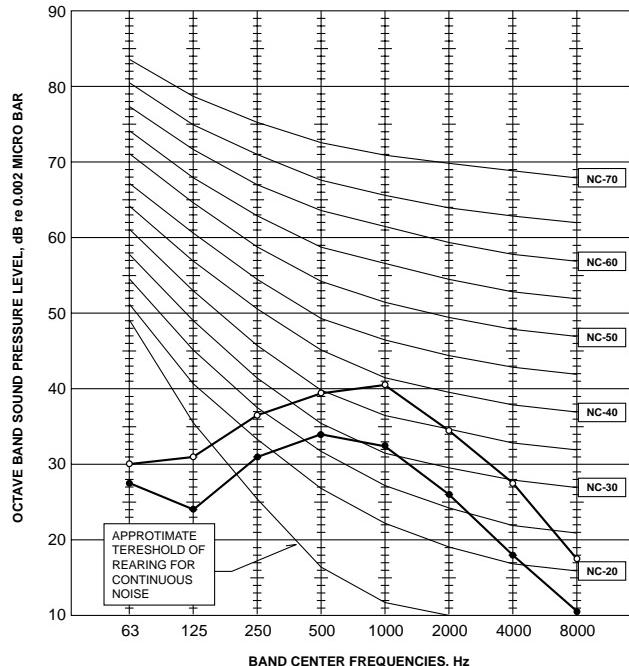
The air coverage range is the value up to the position where the air speed is 0.25m/sec. when air is blown out horizontally from the unit at the Hi notch position.

The coverage range should be used only as a general guideline since it varies according to the size of the room and the furniture inside the room.

## 5. NOISE CRITERION CURVES

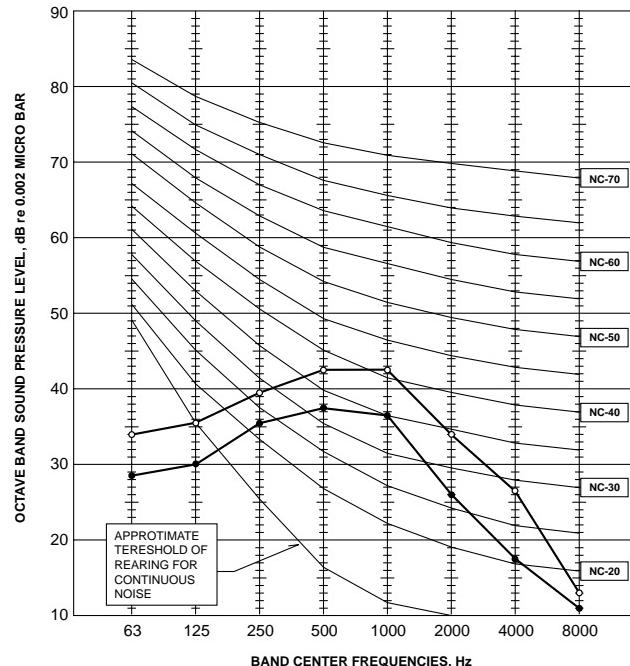
**PKH-1.6FKA**  
**PKH-2FKA**

NOTCH	SPL(db(A))	LINE
Hi	43	○—○
Lo	36	●—●



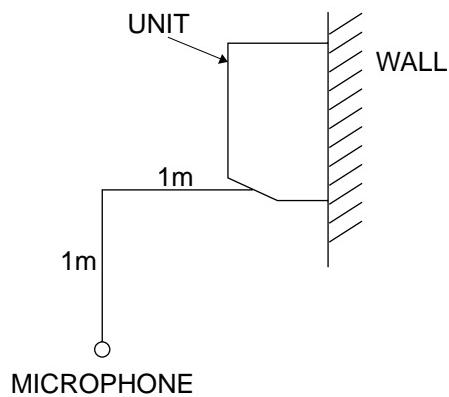
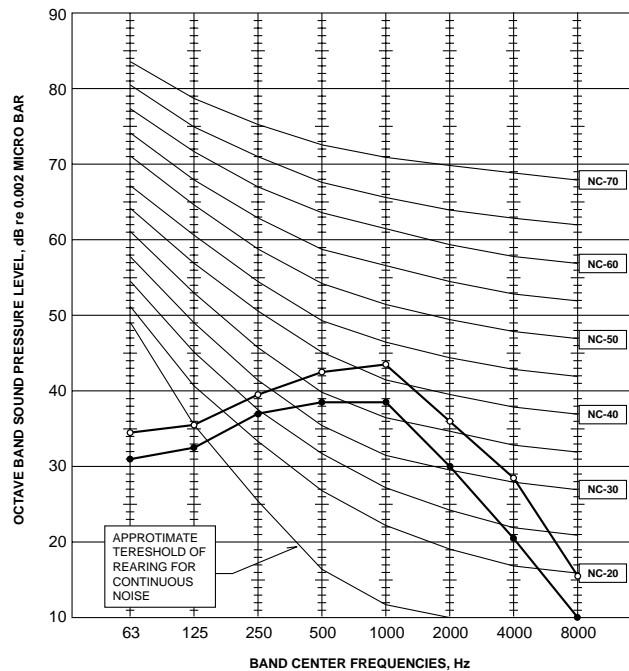
**PKH-2.5FKA**  
**PKH-3FKA**

NOTCH	SPL(db(A))	LINE
Hi	45	○—○
Lo	39	●—●



**PKH-4FKSA**

NOTCH	SPL(db(A))	LINE
Hi	46	○—○
Lo	41	●—●

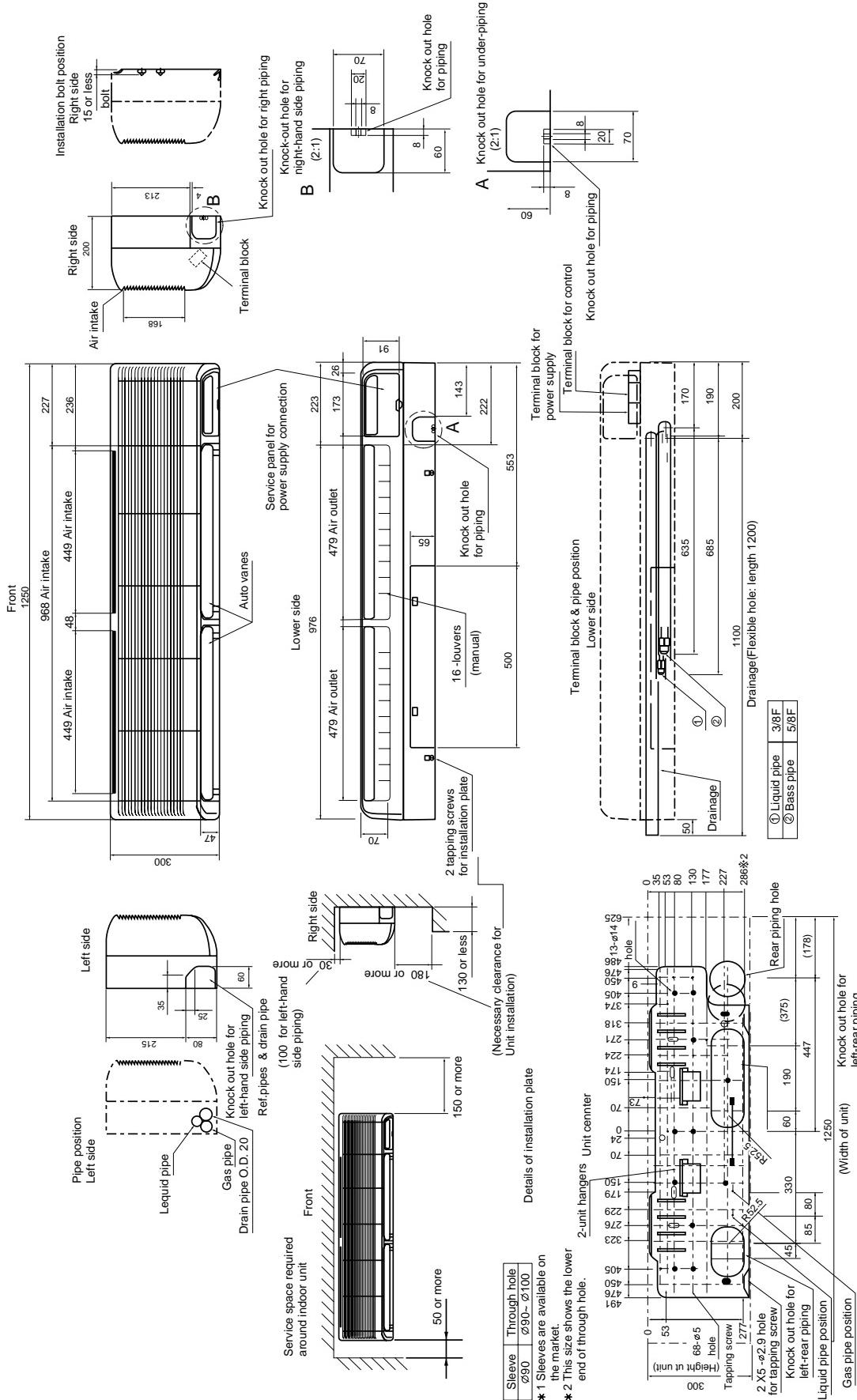


Ambient temperature 27°C

Test conditions are based on JIS Z8731

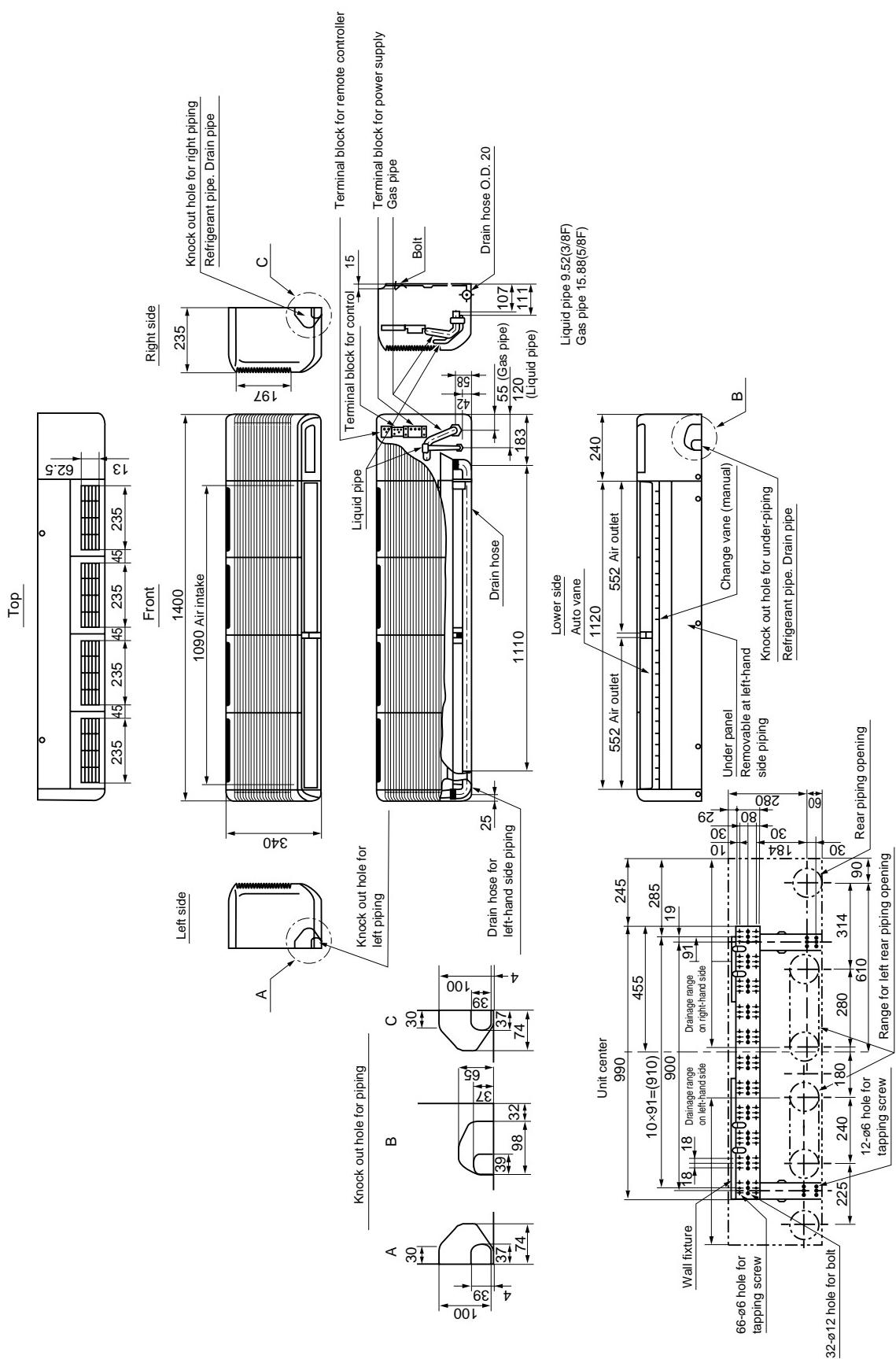
## 1. INDOOR UNIT PKH-1.6FKA-E PKH-2FKA-E

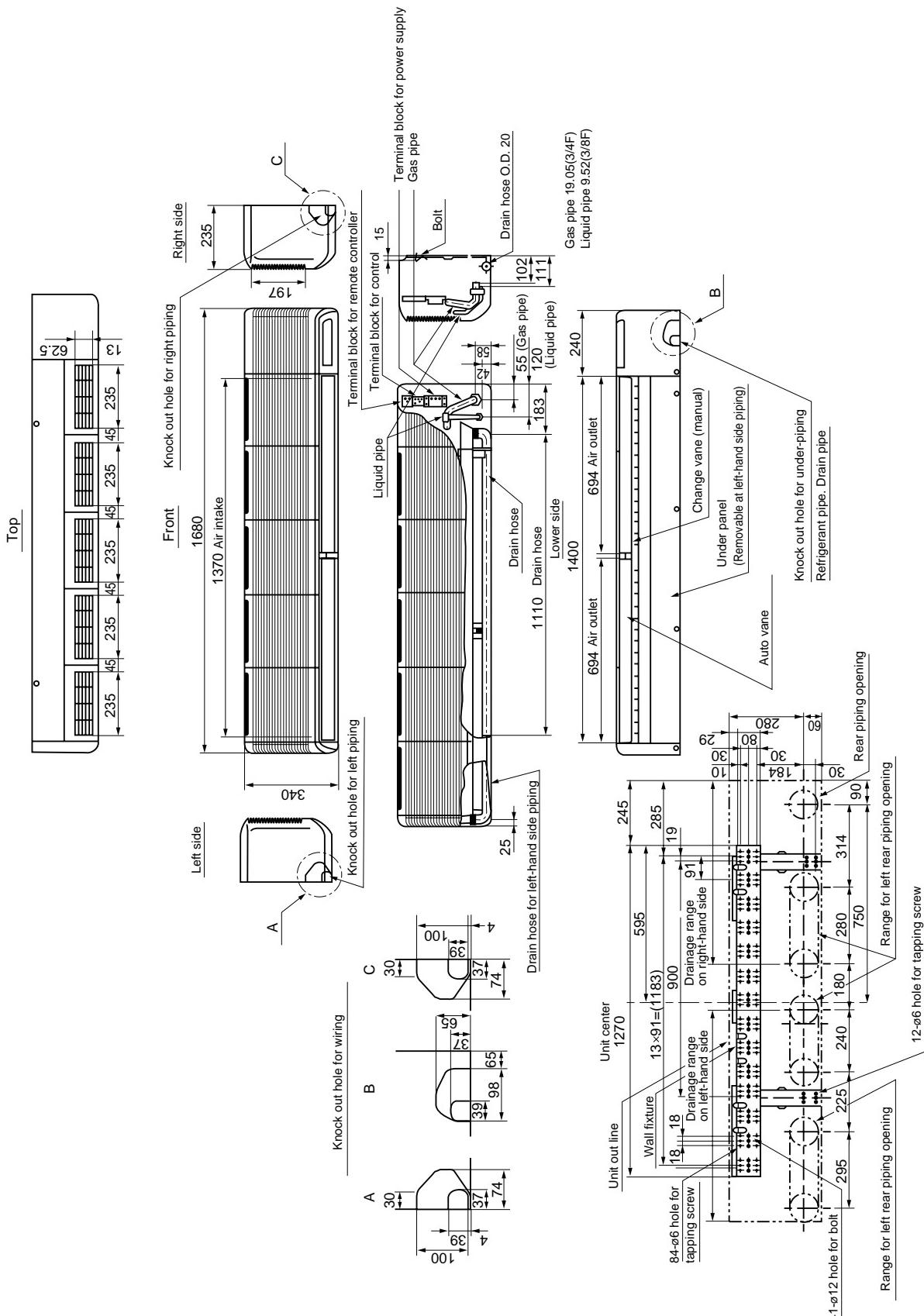
Unit : mm



**PKH-2.5FKA-E**  
**PKH-3FKA-E**

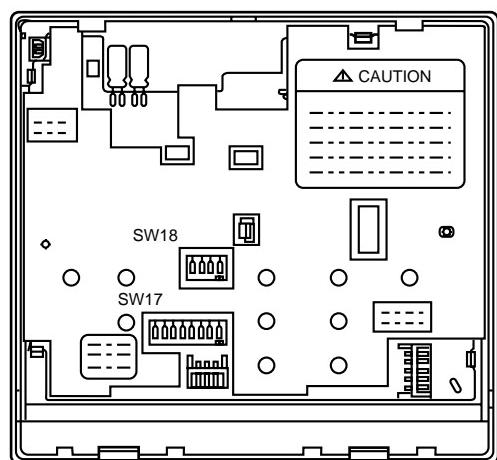
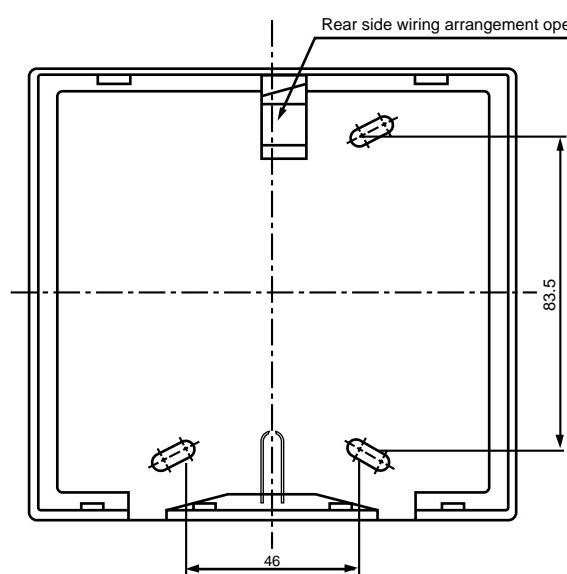
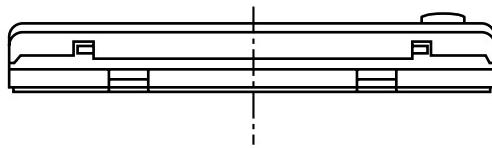
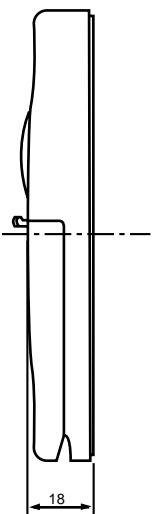
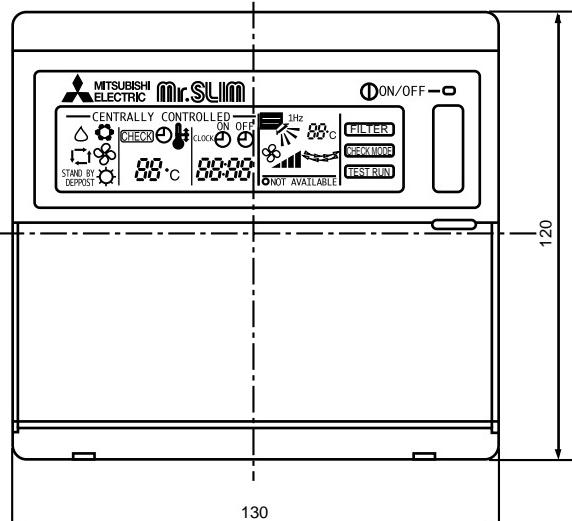
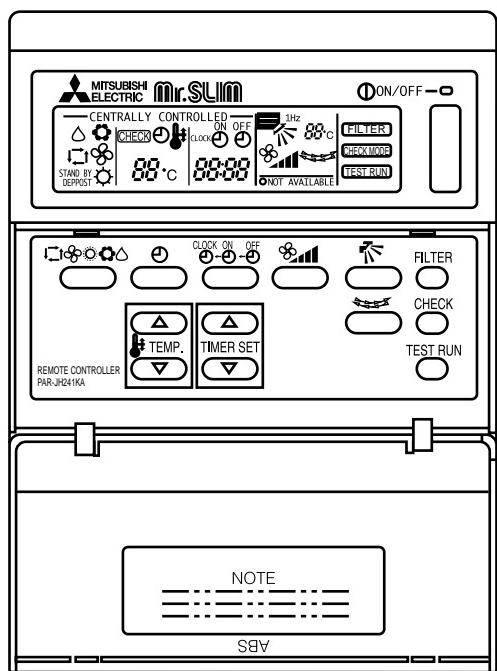
**Unit : mm**



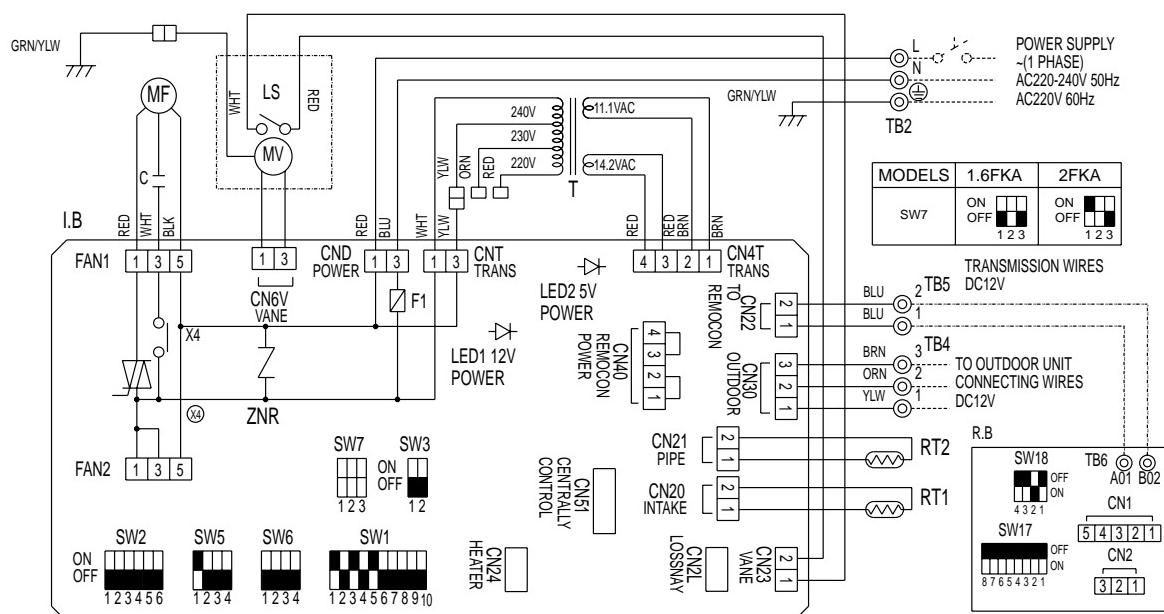


## 2. REMOTE CONTROLLER

Unit : mm



## PKH-1.6FKA-E / PKH-2FKA-E

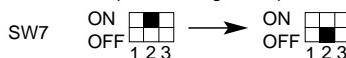


SYMBOL	NAME	SYMBOL	NAME
C	FAN MOTOR CAPACITOR	RT2	INDOOR COIL THERMISTOR (0°C/15Ω.25°C/5.4ΩDETECT)
CN1 <R.B>	PROGRAM TIMER CONNECTOR	SW1 <I.B>	MODE SELECTOR
CN2 <R.B>	REMOTE SWITCH CONNECTOR	SW2 <I.B>	ADDRESS SELECTOR
CN2L <I.B>	LOSSNAY CONNECTOR	SW3 <I.B>	EMERGENCY OPERATION SWITCH
CN51 <I.B>	CENTRALLY CONTROL CONNECTOR	SW5.6 <I.B>	MODEL SELECTOR
FAN2	EMERGENCY OPERATION CONNECTOR	SW7 <I.B>	MODEL SELECTOR
F1 <I.B>	FUSE (6.3A 250V)	SW17 <R.B>	ADDRESS SELECTOR
I.B	INDOOR CONTROLLER BOARD	SW18 <R.B>	FUNCTION SELECTOR
LED1 <I.B>	DC 12V POWER LED	T	TRANSFORMER
LED2 <I.B>	DC 5V POWER LED	TB2	TERMINAL BLOCK (POWER SUPPLY)
LS	LIMIT SWITCH	TB4	TERMINAL BLOCK (INDOOR/OUTDOOR CONNECTING WIRE)
MF	FAN MOTOR	TB5	TERMINAL BLOCK (REMOTE CONTROLLER)
MV	VANE MOTOR	TB6	LINE TRANSMISSION TERMINAL BLOCK
R.B	REMOTE CONTROLLER BOARD	X4 <I.B>	FAN MOTOR RELAY
RT1	ROOM TEMPERATURE THERMISTOR (0°C/15Ω.25°C/5.4ΩDETECT)	ZNR	VARISTOR

## NOTES :

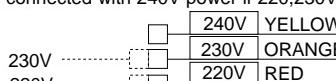
1. Since the indoor fan motor (MF) is connected with 230, 240V power. using 220V power will require a setting change of the dip switch (SW7<I.B>) on the indoor controller board as shown in fig : \*1.

[fig \*1] Indoor fan motor (MF) for 220V.



2. Since the indoor transformer (T) is connected with 240V power if 220,230V power is used. Change the wiring connection showing fig : \*2.

[fig \*2] When power supply is



3. Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.

4. Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers.

5. Symbols used in wiring diagram above are, □: Connector, ○: Terminal block.

6. Emergency operation

If remote controller or microcomputer fails but there is no other trouble, emergency operation is possible by setting dip switch (SW3<I.B>) on the indoor controller board.

[Check items]

(1) Make sure that no other trouble exist the outdoor unit. Trouble with the outdoor unit prevents emergency operation.

(If any trouble exists the outdoor unit error code "P8" will be displayed on the remote controller and the trouble position will be shown on the outdoor controller board LED. See electric wiring diagram of the outdoor unit for details.)

(2) Make sure that there is no trouble with the indoor fan.

Emergency operation will be continuous operation mode due to power ON/OFF (ON/OFF with the remote controller is not possible).

[Emergency operation procedure]

(1) Switch the fan connector on the indoor controller board from FAN 1 to FAN 2.

(2) Set the dip switch (SW3<I.B>) on the indoor controller board to ① on and ② off for cooling and ① - ② on for heating.

(3) Turn on outdoor unit side circuit breaker, then indoor unit side circuit breaker.

(4) During emergency operation indoor fan runs at high speed but automatic vane remains stop.

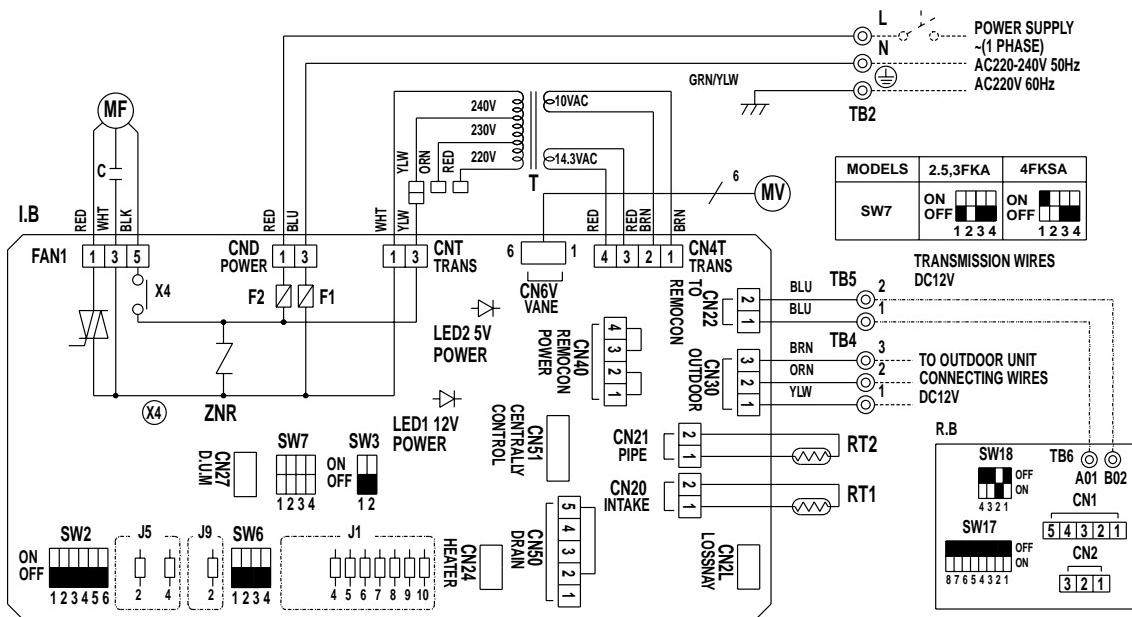
(5) Thermostat will not function. Cold air blows out for defrosting during heating thus do not operate defrosting for along time.

(6) Emergency cooling should be limited to 10 hours maximum.

(The indoor unit heat exchanger may freeze).

(7) After every operation, switch the fan connector to FAN1, and set all dip switches (SW3<I.B>) to OFF.

## PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E

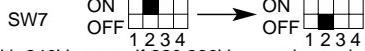


SYMBOL	NAME	SYMBOL	NAME
C	FAN MOTOR CAPACITOR	RT1	ROOM TEMPERATURE THERMISTOR (0°C/15Ω 25°C/5.4Ω DETECT)
CN1 <R.B>	PROGRAM TIMER CONNECTOR	RT2	INDOOR COIL THERMISTOR (0°C/15Ω 25°C/5.4Ω DETECT)
CN2 <R.B>	REMOTE SWITCH CONNECTOR	SW2 <I.B>	ADDRESS SELECTOR
CN2L <I.B>	LOSSNAY CONNECTOR	SW3 <I.B>	EMERGENCY OPERATION SWITCH
CN27 <I.B>	DRAIN LIFT-UP MECHANISM CONNECTOR	SW6 <I.B>	MODEL SELECTOR
CN51 <I.B>	CENTRALLY CONTROL CONNECTOR	SW7 <I.B>	MODEL SELECTOR
F1.2 <I.B>	FUSE (6.3A 250V)	SW17 <R.B>	ADDRESS SELECTOR
I.B	INDOOR CONTROLLER BOARD	SW18 <R.B>	FUNCTION SELECTOR
J1	MODE SELECTOR JUMPER RESISTORS	T	TRANSFORMER
J5	MODE SELECTOR JUMPER RESISTORS	TB2	TERMINAL BLOCK (POWER SUPPLY)
J9	MODE SELECTOR JUMPER RESISTORS	TB4	TERMINAL BLOCK (INDOOR/OUTDOOR CONNECTING WIRE)
LED1 <I.B>	DC 12V POWER LED	TB5	TERMINAL BLOCK (REMOTE CONTROLLER)
LED2 <I.B>	DC 5V POWER LED	TB6	LINE TRANSMISSION TERMINAL BLOCK
MF	FAN MOTOR	X4 <I.B>	FAN MOTOR RELAY
MV	VANE MOTOR	ZNR	VARISTOR
R.B	REMOTE CONTROLLER BOARD		

### NOTES:

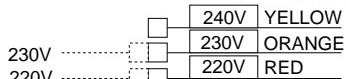
1. Since the indoor fan motor (MF) is connected with 230, 240V power, using 220V power will require a setting change of the dip switch (SW7 <I.B>) on the indoor controller board as shown in fig : \*1.

[fig \*1] Indoor fan motor (MF) for 220V.



2. Since the indoor transformer (T) is connected with 240V power, if 220,230V power is used. Change the wiring connection showing fig : \*2.

[fig \*2] When power supply is



3. Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.

4. Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers.

5. Symbols used in wiring diagram above are, : Connector, : Terminal block.

6. Emergency operation

If remote controller of microcomputer fails but there is no other trouble, emergency operation is possible by setting dip switch (SW3 <I.B>) on the indoor controller board.

[Check items]

(1) Make sure that no other trouble exist the outdoor unit. Trouble with the outdoor unit prevents emergency operation.

(If any trouble exists the outdoor unit error code "P8" will be displayed on the remote controller and the trouble position will be shown on the outdoor controller board LED. See electric wiring diagram of the outdoor unit for details.)

(2) Make sure that there is no trouble with the indoor fan.

Emergency operation will be continuous operation mode due to power ON/OFF(ON/OFF with the remote controller is not possible).

[Emergency operation procedure]

(1) Set the dip switch (SW3 <I.B>) on the indoor controller board to on and off for cooling and - on for heating.

(2) Turn on outdoor unit side circuit breaker, then indoor unit side circuit breaker.

(3) During emergency operation indoor fan runs at high speed but automatic vane remains stop.

(4) Thermostat will not function. Cold air blows out for defrosting during heating thus do not operate defrosting for along time.

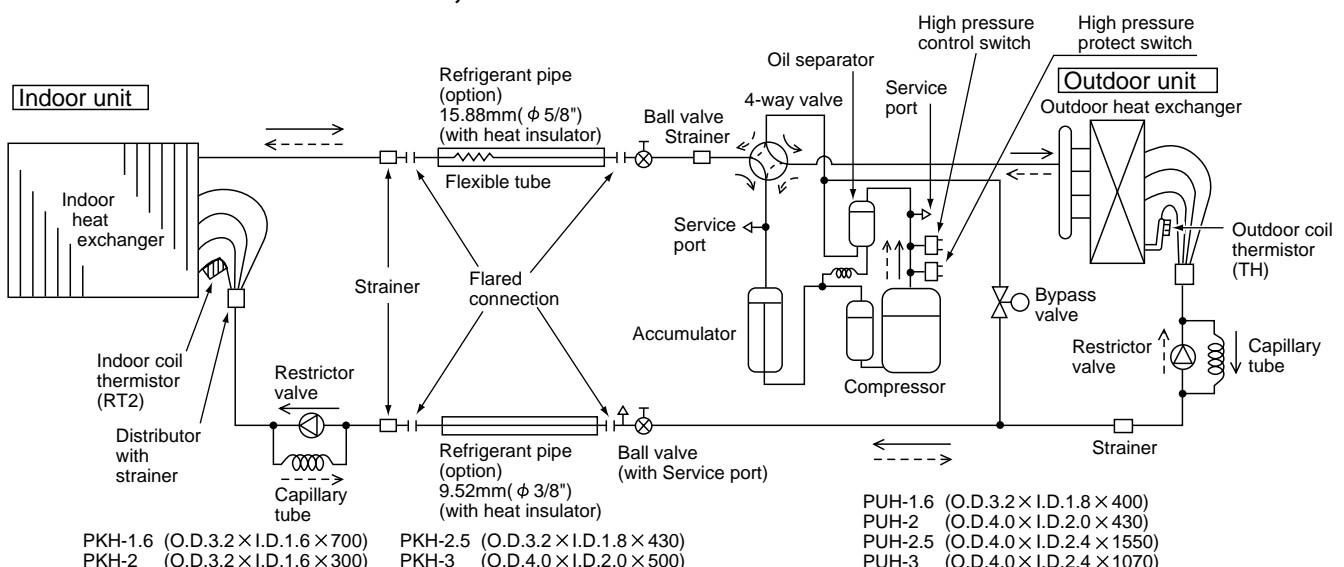
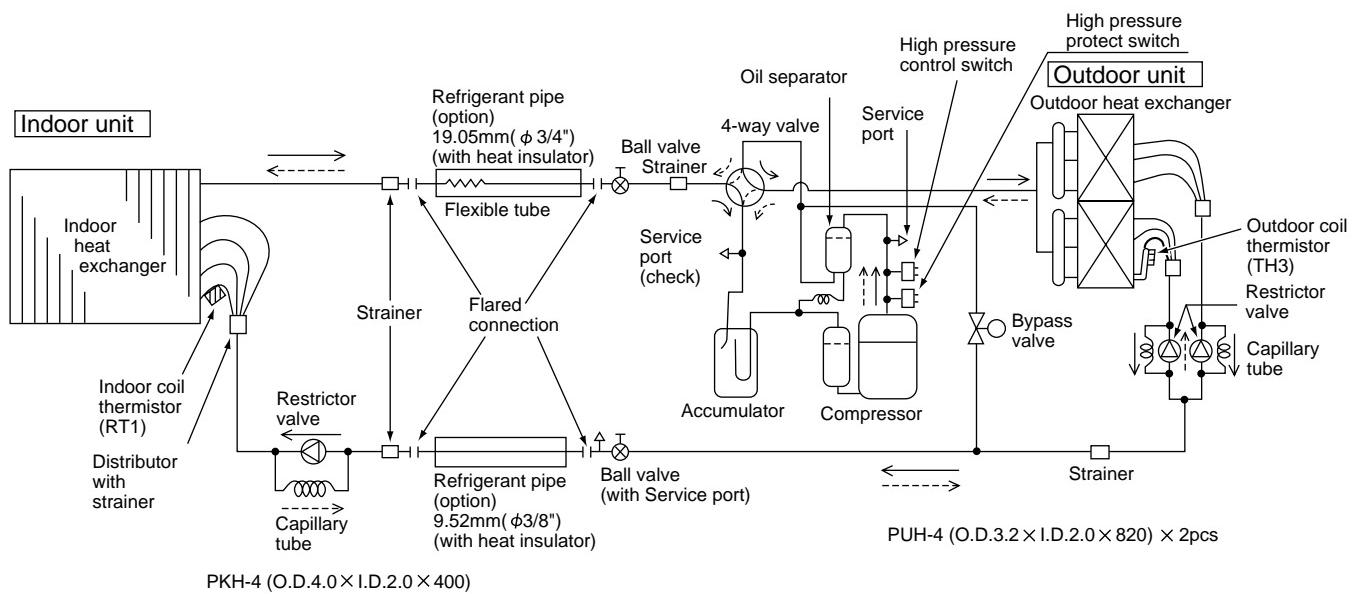
(5) Emergency cooling should be limited to 10 hours maximum.

(The indoor unit heat exchanger may freeze).

(6) After every operation, switch the fan connector to FAN1, and set all dip switches (SW3 <I.B>) to OFF.

**PKH-1.6FKA-E / PUH-1.6VKA<sub>3</sub>.UK**  
**PKH-2FKA-E / PUH-2VKA<sub>2</sub>.UK**  
**PKH-2.5FKA-E / PUH-2.5VKA<sub>2</sub>.UK**  
**PKH-3FKA-E / PUH-3VKA<sub>2</sub>.UK, 3YKA<sub>2</sub>.UK**

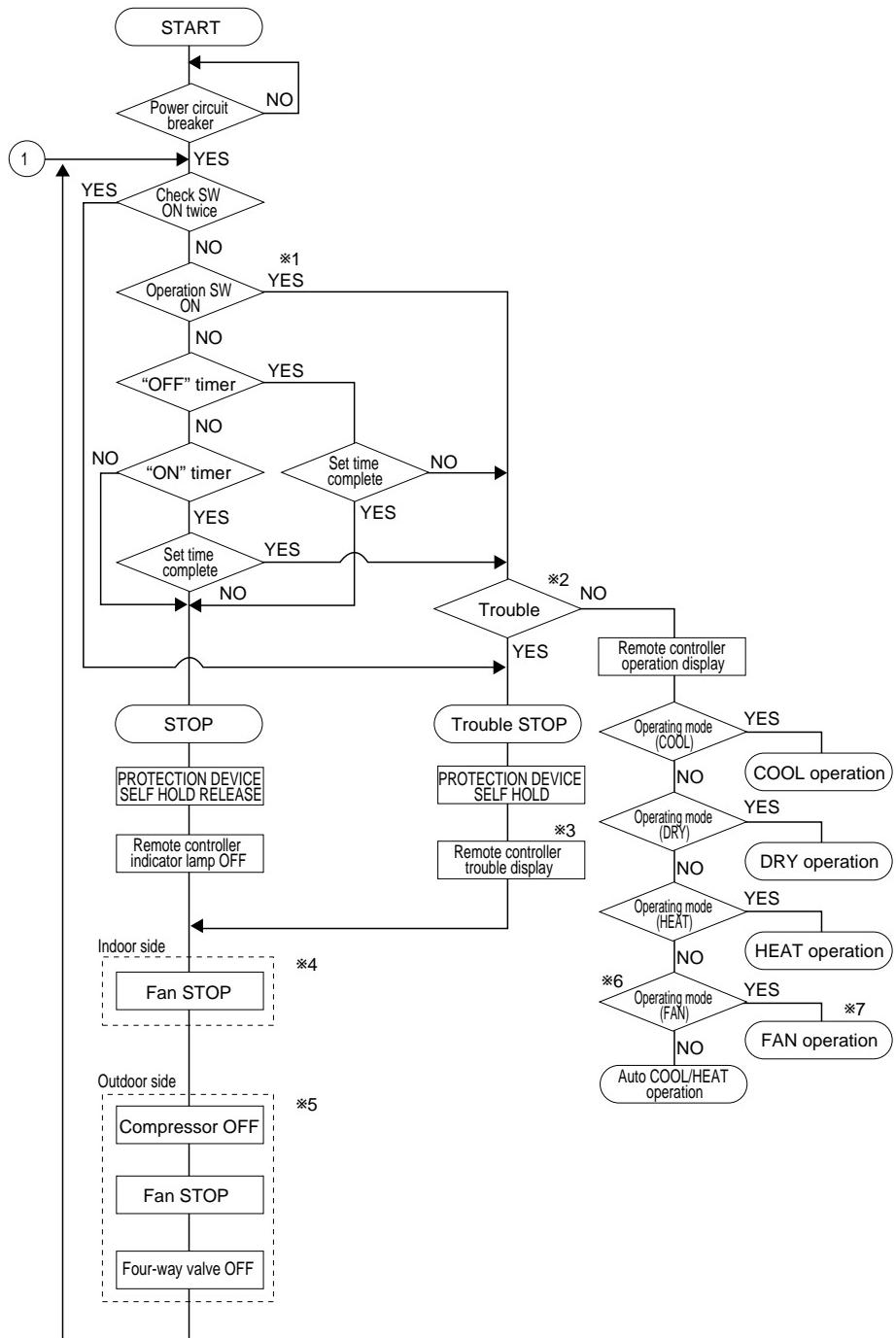
Unit : mm

**PKH-4FKSA-E / PUH-4YKSA<sub>2</sub>.UK**

→ Refrigerant flow in cooling  
 → Refrigerant flow in heating

R.V. coil  
 Heating:ON  
 Cooling:OFF

## MAIN OPERATION



\* 1 In addition, the centralized and remote control can be operated.

\* 2 The modes which indicate the sources of trouble are listed below.

- EO=Signal transmitting/receiving error
- P1=Room temperature thermistor malfunction
- P2=Indoor coil thermistor malfunction
- P4=Drain sensor malfunction
- P5=Drain over flow
- P6=Coil frost/overheat protection
- P7=System error
- P8=Outdoor unit trouble

\* 3 The CHECK switch will show if an error has occurred in the past.

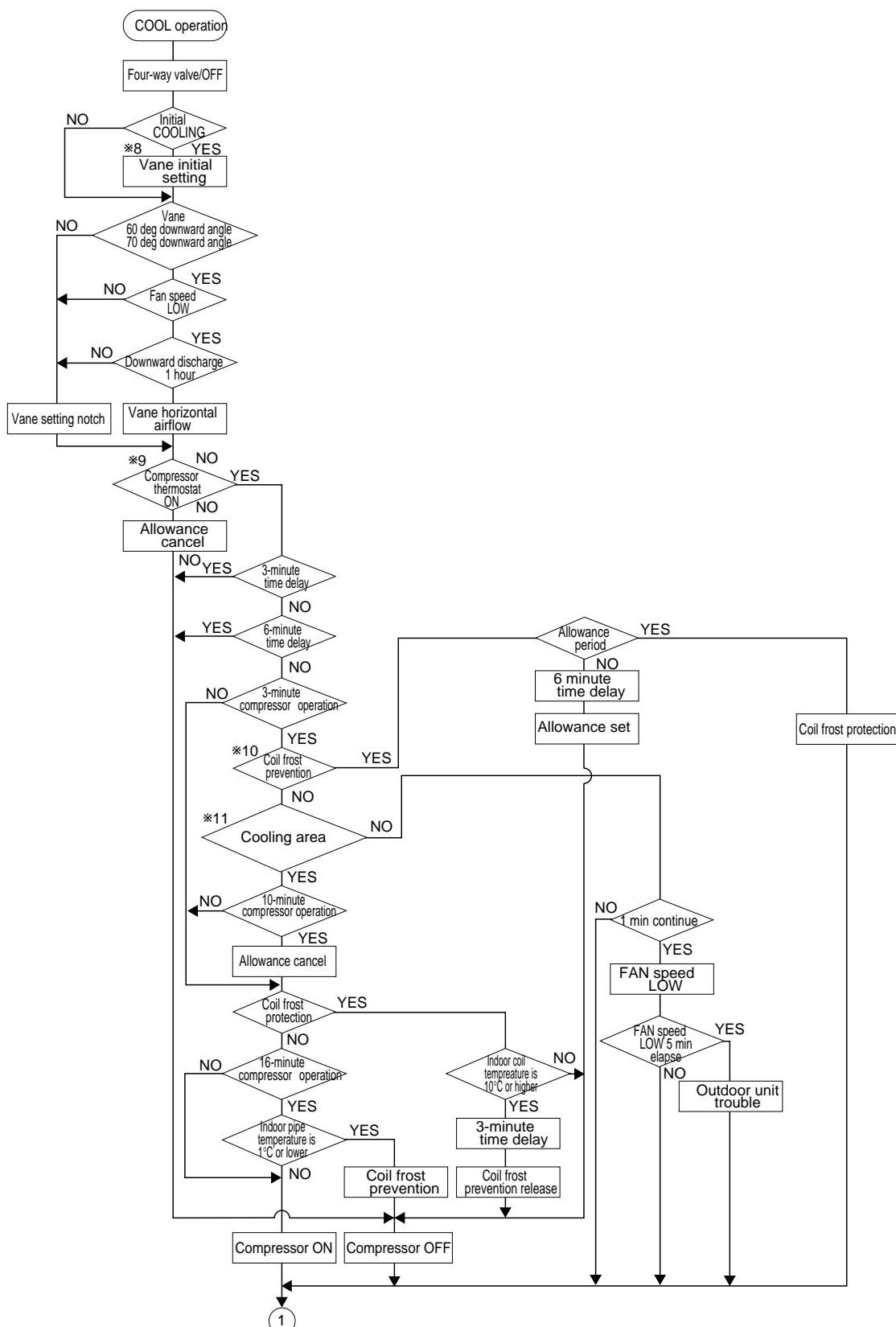
\* 4 Fan runs on low speed for 1 minute in order to remove overheat air.

\* 5 The 3-minute (6 minutes ... heating mode) time-delay functions after compressor stops.

\* 6 FAN or AUTO mode is selected by the indoor dip switch setting.

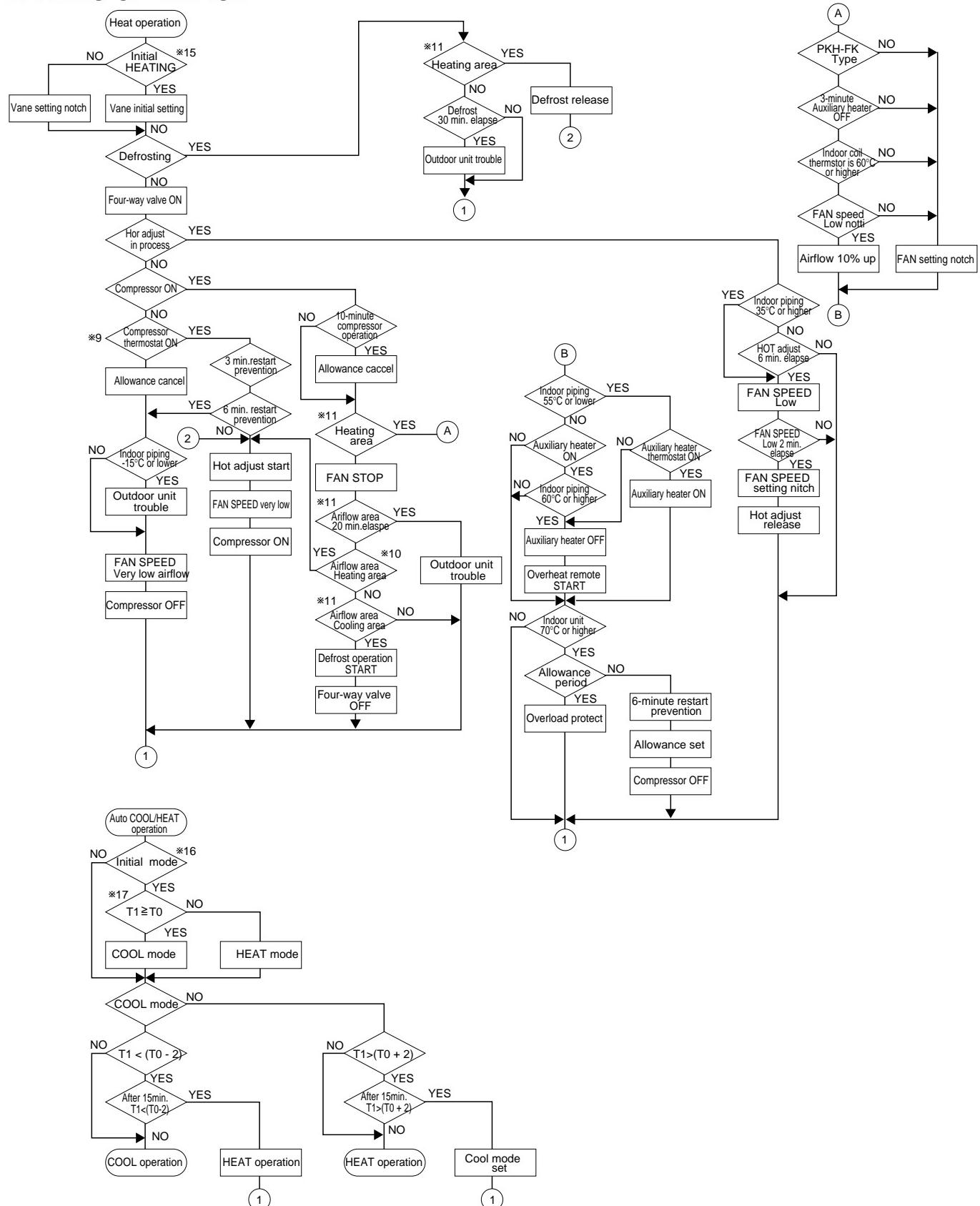
\* 7 In FAN mode, fan speed and vane operation depend on the remote controller setting. (Compressor is OFF.)

## COOLING OPERATION



- \* 8 When operation stops or changes to cooling or dry mode, the auto vane turns to a horizontal angle. IF operation changes during auto vane SWING, the auto vane will continue to swing.
- \* 9 When operating TEST RUN, the thermostat will be continuously ON.
- \*10 After 3 minute compressor operation, if the indoor coil thermistor reads -15°C or below for 3 minutes, the compressor will stop for 6 minutes.
- \*11 Cooling area : Indoor coil temperature is more than 5 degrees above the room temperature.  
Heating area : Indoor coil temperature is more than 5 degrees below the room temperature.  
FAN area : Indoor coil temperature is within 5 degrees either way of the room temperature.

## **HEATING OPERATION**



\*15 ( i ) Until Low airflow is set while hot adjustment

- ( i ) Until low airflow is set while
  - ( ii ) While defrosting (FAN STOP)
  - ( iii ) When thermostat is OFF

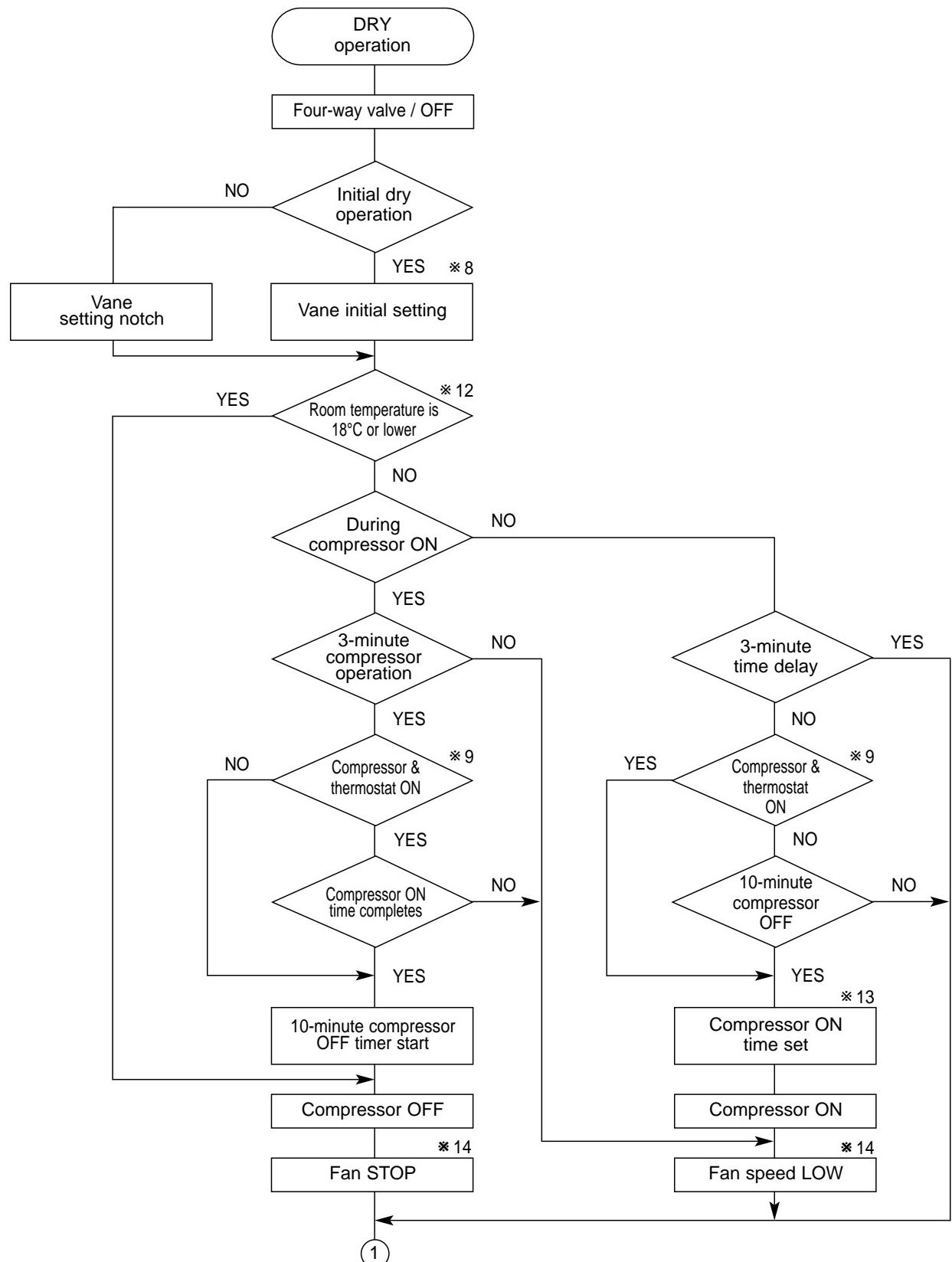
In the case of( i ), ( ii ) and ( iii ) above, airflow is horizontal regardless the VANE setting.

\*16 When AUTO operation is started, COOL or HEAT mode is selected automatically.

\*17 When AUTO operation is

To : Set temperature

## **DRY OPERATION**



\*8 ~ 9 Refer to page 31.

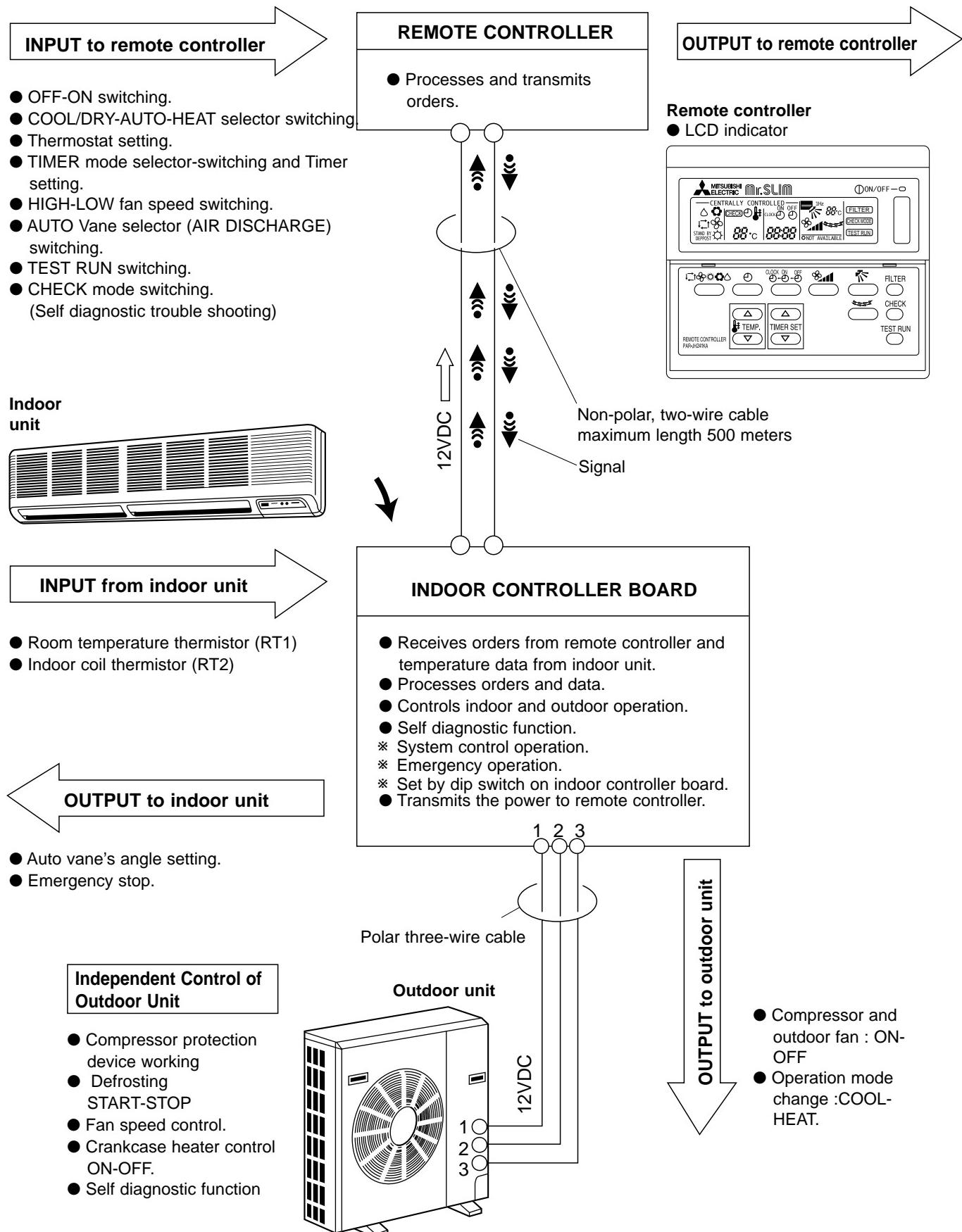
\*12 When room temperature is 18°C or below, the compressor cannot operate.

When room temperature rises over 18°C, the compressor starts after a 3-minute time delay.

\*13 Compressor ON time is decided by room temperature. Refer to page 32.

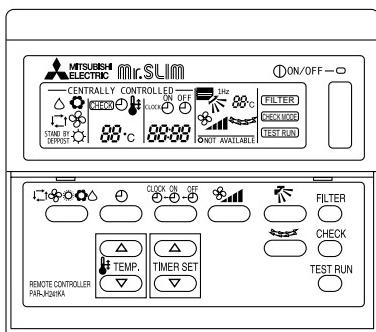
\* 14 In dry operation, compressor ON makes the fan speed LOW and compressor OFF stops the fan. It is not possible to set the fan speed with the remote controller

## 1. OUTLINE OF MICROPROCESSOR CON-



## 2. INDOOR UNIT CONTROL

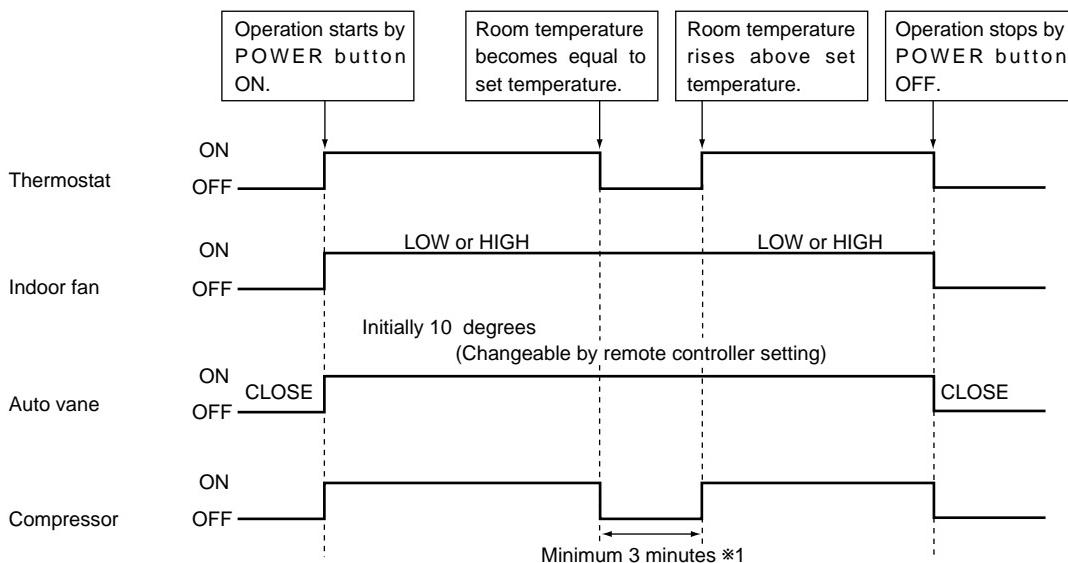
### 2-1 COOL operation



#### <How to operate>

- ① Press POWER ON/OFF button.
  - ② Press the button to display “”.
  - ③ Press the to set the desired temperature.
- NOTE:** The set temperature changes 1°C when the or button is press one time Cooling 19 to 30°C.

#### <COOL operation time chart>



\*1 Even if the room temperature rise above the set temperature during this period, the compressor will not start until this period has ended.

#### (1) Compressor control

##### ① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

##### ② The compressor runs when room temperature is higher than set temperature.

The compressor stops when room temperature is equal to or lower than the set temperature.

##### ③ The compressor stops in check mode or during protective functions.

##### ④ Coil frost prevention to prevent indoor coil frost, the compressor will stop when the indoor coil thermistor (RT2) reads 1°C or below after the compressor has been continuously operated for at least 16 minutes or more. When the indoor coil temperature rises to 10°C or above, the compressor will start after a 3-minute time delay.

**NOTE :** By turning OFF the dip switch SW1-5, PKH-2.5/3/4 for J1-5 on indoor controller board, the start temperature of coil frost prevention changes 1°C to -3°C.

##### ⑤ Coil frost protection

When indoor coil temperature becomes -15°C or below, coil frost protection will proceed as follows.

#### <Start condition>

After the compressor has been continuously operated for 3 minutes or more, and the indoor coil temperature has been -15°C or below for 3 minutes, the coil frost protection will start.

#### <Coil frost protection>

Compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again during the first 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of “P8” on the remote controller.

#### <Termination conditions>

Coil frost protection is released when the start condition is not satisfied again during the allowance, or when the COOL mode stops or changes to another mode.

## (2) Indoor fan control

Indoor fan speed LOW/HIGH depends on the remote controller setting.

However, if an outdoor unit abnormality is detected, the indoor fan speed will be LOW, regardless of the remote controller setting.

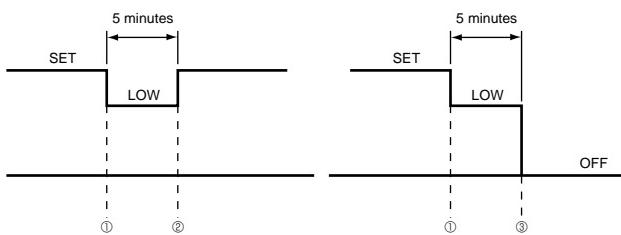
When the outdoor unit abnormality detection is released and the fan speed returns to the set speed, the quiet cycle control will work.

(a) Normal control

(i) Fan speed LOW/HIGH depends on the remote controller setting regardless of the thermostat ON/OFF.

(ii) Fan speed will remain on LOW if an abnormality in outdoor unit is detected. (5 minutes)

When the abnormality detection is released, the fan speed returns to the set speed.



- ① Start-up of outdoor unit abnormality detection.
- ② Release of outdoor unit abnormality detection.
- ③ Unit stop due to outdoor unit abnormality with P8 indication.

**NOTE 1 :** Fan stops immediately if the unit stops or the check mode is started.

### (3) Auto vane control

Auto vane position is set to 10 degrees airflow at the start-up of COOL operation. It can then be changed by the remote controller.

#### (a) Stop mode (fixed operation)

- (i) At start-up of COOL operation, the auto vane is set to 10 degrees airflow direction.
- (ii) Discharge direction can be changed with  button.

① Fan speed : LOW



② Fan speed : HIGH

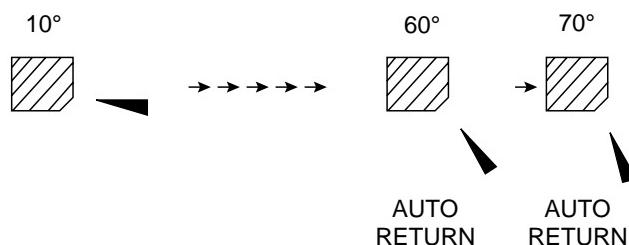


#### (b) SWING mode (Only PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E)

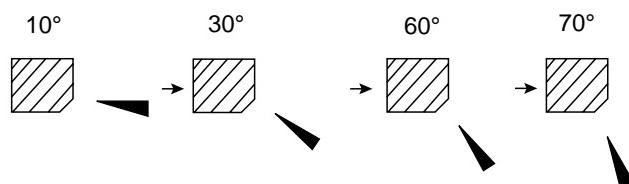
- (i) The vane motor turns ON when the SWING mode is selected. The vane motor is continuously ON during SWING mode.

<AUTO RETURN>

① Fan speed : LOW



② Fan speed : HIGH



When 60 degrees or 70 degrees airflow is selected with the LOW fan speed in COOL operation, "Auto RETURN" will appear below the temperature display. One hour later, the airflow direction returns to 10 degrees automatically and "AUTO RETURN" will disappear. If the airflow direction is set to 10 degrees during "AUTO RETURN" indication, the time counting for AUTO RETURN is cancelled.

<Auto vane drive> (PKH-1.6FKA-E / PKH-2FKA-E)

(a) The auto vane is driven by a 2.5 rpm motor.

①	②	③	④
10°	30°	60°	70°

(b) Vane motor drive time

Airflow direction change	50Hz
Downward C → Horizontal ④→①	Rise 2.1
Horizontal → Downward A ①→②	0.65
Downward A → Horizontal B ②→③	6.7
Horizontal B → Downward C ③→④	0.65

(c) Airflow direction is based on the horizontal position detected by the vane motor limit switch. When the horizontal position can not be determined, the vane motor will remain ON until it is determined.

- ① If the horizontal position still can not be detected, despite the 10minute detection, the vane motor will turn OFF  
Remote controller indication continues.
- ② After, if the vane motor receives the “auto vane ON” command again, it will restart detecting the horizontal position.  
If the horizontal position still can not be determined, despite the 10-minute detection, the vane motor will turn OFF.

<Auto vane drive> (PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E)

(a) The vane is driven by DC12V motor.

(b) Airflow direction is selected depends on the number of pulse were sent.

(c) Before start driving the auto vane, detect the standard position first, output the number of pulse to each Airflow.

(d) The speed of the auto vane drive for both open and close are set at 200 pulse/sec.

(e) Method of driving the auto vane.

- ① Detecting the standard position:

Output 1600 pulse to the opening direction.

- ② Position setting:Output the number of pulse indicated no below chart to the closing direction.

	The number of pulse output after detecting the standard position
Close	1600
Horizontal	680
Downward A	578
Downward B	283
Downward C	113

**(4) Detecting abnormalities in the outdoor unit**

After the compressor has been continuously operated for 3 minutes, if the difference between the indoor coil temperature and room temperature is out of RANGE C for 1 minute, the indoor fan speed will turn to LOW. Five minutes later, if the difference is still out of

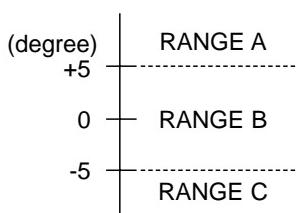
RANGE C, the outdoor unit is functioning abnormally. Thus, the compressor stops and check code “P8” appears on remote controller.

RANGE A : Indoor coil temperature is more than 5 degrees above room temperature.

RANGE B : Indoor coil temperature is within 5 degrees either way of room temperature.

RANGE C : Indoor coil temperature is more than 5 degrees below room temperature.

Indoor coil temperature  
minus room temperature



## (5) Drain pump control (Option : Only PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E)

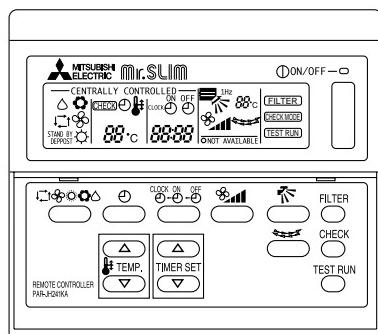
The drain pump works in COOL or DRY operation. When operation stops or changes to HEAT mode, the drain pump continues to operate for 3 more minutes. The drain pump does not work in check mode.

### <Drain sensor>

When both the drain pump and unit are operating, the drain sensor detects the temperature. This temperature tells whether the drain water level is above or under the drain sensor. If the drain water level rises above the drain sensor due to a drain pump malfunction, the unit will stop operating in order to prevent drain from overflowing. The check code "P5" on the remote controller will display this occurrence. When both of the following conditions are satisfied, the drain sensor is determined to be under water.

- Though the drain sensor has been heated by the drain sensor heater for more than 40 seconds, its temperature rise is less than 20 degrees.
- The drain sensor temperature is below 63°C.

## 2-2 DRY operation

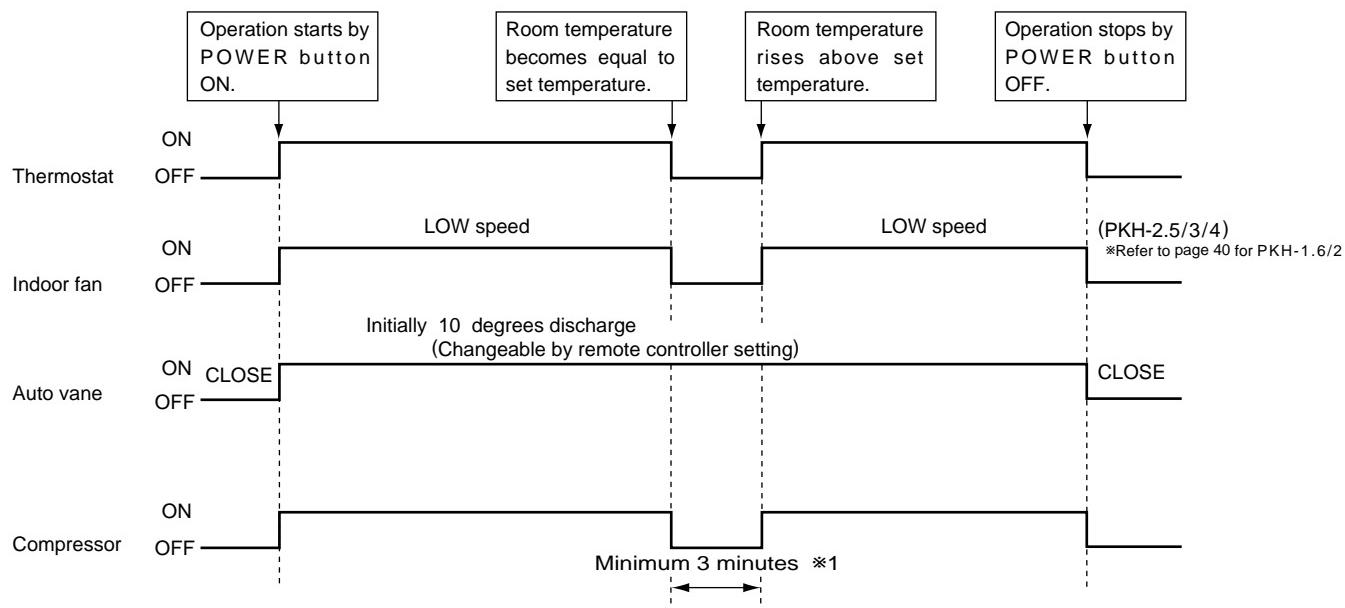


### <How to operate>

- ① Press POWER ON/OFF button.
- ② Press the button to display “△”.
- ③ Press the TEMP. button to set the desired temperature.

**NOTE:** The set temperature changes 1°C when the or button is press one time DRY 19 to 30°C.

### <DRY operation time chart>



## (1) Compressor control

### ① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

### ② The compressor runs when the room temperature is higher than the set temperature.

The compressor stops when the room temperature is equal to or lower than the set temperature.

### ③ The compressor stops in check mode or during protective functions.

### ④ The compressor will not start when the room temperature is below 18°C.

The compressor starts intermittent operation when the power is turned ON with room temperature above 18°C. The compressor ON/OFF time depends on the thermostat ON/OFF and the following room temperatures. After 3-minute compressor operation,

- If the room temperature thermistor reads above 28°C with thermostat ON, the compressor will operate for 6 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads 26°C—28°C with thermostat ON, the compressor will operate for 4 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads 24°C—26°C with thermostat ON, the compressor will operate for 2 more minutes and then stop for 3 minutes.
- If the room temperature thermistor reads below 24°C with thermostat ON, the compressor will stop for 3 minutes.
- If the thermostat is OFF regardless of room temperature, the compressor will stop for 10 minutes.

### ⑤ Coil frost protection

Coil frost protection in DRY operation is the same as in COOL operation.

### ⑥ Coil frost prevention

Coil frost prevention does not operate in DRY operation.

## (2) Indoor fan control

### <PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E>

The indoor fan runs on LOW speed during compressor operation. The fan speed cannot be changed with the remote controller. Also, the indoor fan does not run during compressor OFF.

### <PKH-1.6FKA-E / PKH-2FKA-E>

#### (a) During compressor OFF

- When the indoor coil temperature is 6°C or above, the indoor fan will stop.
- When the indoor coil temperature is below 6°C, the indoor fan will run in DRY mode.

#### (b) During compressor ON

- The indoor fan runs on EXTRA-LOW speed for the first 1 minute after the compressor is turned on.
- After, the indoor fan runs in DRY mode.

#### <Dry mode>

The fan notch is controlled by the indoor coil temperature every 30 seconds.

Indoor coil temperature	Fan operation
Below -10°C	LOW speed
-10 to 0°C	EXTRA-LOW speed
Above 0°C	Dry mode

During compressor OFF, when the indoor coil temperature becomes 6°C or above, the indoor fan turns OFF immediately.

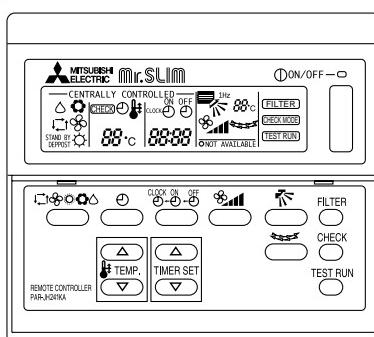
## (3) Auto vane & drain pump controls

Same as in COOL operation

## (4) Detecting abnormalities in the outdoor unit

An abnormality in the outdoor unit can not be detected in DRY operation.

## 2-3 HEAT operation



### <How to operate>

- ① Press POWER ON/OFF button.
  - ② Press the button to display “●”.
  - ③ Press the to set the desired temperature.
- NOTE:** The set temperature changes 1°C when the or button is press one time Heating 17 to 28°C.

### <Display in HEAT operation>

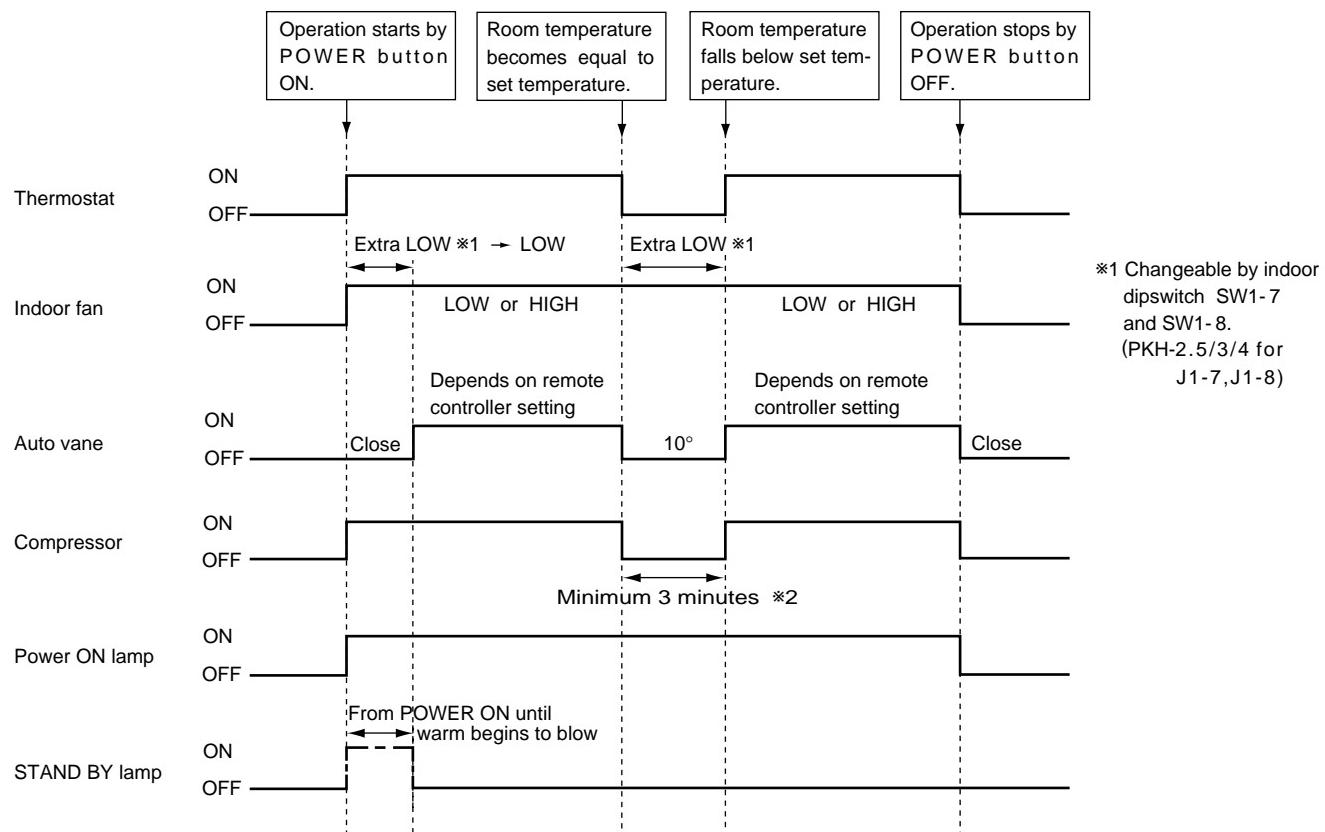
#### [ DEFROST ]

The [ DEFROST ] symbol is only displayed during the defrost operation.

#### [ STANDBY ]

The [ STANDBY ] symbol is displayed from the time the heating operation starts until the heated air begins to blow.

### <HEAT operation time chart>



\*2 Even if the room temperature rise above the set temperature during this period, the compressor will not start until this period has ended.

#### (1) Compressor control

- ① 3-minute time delay  
To prevent overload, the compressor will not start within 3, minutes after stop.

- ② The compressor runs when the room temperature is lower than the set temperature.  
The compressor stops when the room temperature is equal to or higher than the set temperature.

- ③ The compressor stops in check mode or during protective functions.

- ④ Overheat protection

#### <Start condition>

When the indoor coil thermistor reads 70°C or above, the overheat protection will start.

#### <Overheat protection>

The compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again within 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of “P6” on the remote controller.

#### <Termination conditions>

Overheat protection is terminated when the start condition is not satisfied again during the allowance (10-minute compressor operation), when operation mode changes to other mode, or when thermostat turns OFF.

## (2) Indoor fan control

### (a) Normal control

( i ) The indoor fan runs on EXTRA-LOW speed during the thermostat OFF.

EXTRA-LOW speed can be changed to LOW or HIGH speed by setting the dip switch SW1-7 and SW1-8, (PKH-2.5/3/4 for J1-7, J1-8) If the indoor coil temperature becomes more than 5 degrees below the room temperature during the thermostat OFF, the indoor fan will stop. After, when the indoor coil temperature becomes within 5 degrees of room temperature, the indoor fan will run on EXTRA-LOW speed.

( ii ) Hot adjustment is a warm-up for HEAT operation

<Start conditions>

The hot adjustment works under any of the following conditions.

● HEAT operation starts.

● Defrosting ends.

● Thermostat turns ON.[Hot adjustment]

Initially, the indoor fan runs on EXTRA-LOW speed. When 5 minutes have passed or the indoor coil temperature exceeds 35°C, the fan speed changes to LOW. Two minutes later, the hot adjustment ends. Then, the fan speed depends on the remote controller setting.

( iii ) The indoor fan stops when the indoor coil temperature is within 5 degrees either way of room temperature.

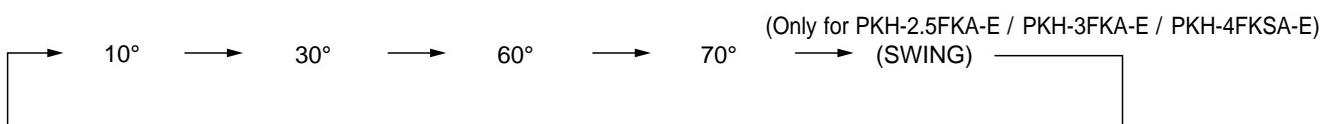
( iv ) To eliminate the remaining heat, the indoor fan runs for the first 1 minute after the booster heater is turned OFF.

## (3) Auto vane control

### (a) STOP mode (fixed operation)

( i ) The airflow direction at the start-up of HEAT operation is the same as that of the previous operation.

( ii ) The airflow direction can be charged by the remote controller setting.



In the following cases, airflow direction becomes 10° regardless of the remote controller setting.

- ① During the hot adjustment with fan speed at EXTRA-LOW
- ② During defrosting with indoor fan OFF
- ③ During the thermostat OFF

### (b) SWING mode (Only for PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E)

( i ) The vane motor turns ON when the SWING mode is selected.

The vane motor is continuously ON during SWING mode.

( ii ) In the following cases, the discharge direction is 10° regardless of the remote controller setting.

- ① During the hot adjustment with fan speed at EXTRA-LOW
- ② During defrosting with indoor fan OFF
- ③ During thermostat OFF

#### (4) Detecting abnormalities in the outdoor unit

When the outdoor unit is determined to be abnormal by the following causes, the compressor will stop and the check code "P8" will appear on the remote controller display.

##### ① During compressor ON after hot adjustment

[1] If the difference between the indoor coil temperature and room temperature is in the RANGE B, the indoor fan will stop.  
\*1 (See the next page.)

[2] Within 20 minutes after entering RANGE B (except for the first 10 seconds),

a) If the temperature difference enters RANGE A, the hot adjustment starts,

b) If the temperature difference is still in RANGE B, the outdoor unit is deemed abnormal.

c) If the temperature difference enters RANGE C, defrosting starts.

Within 30 minutes after entering RANGE C,

●If the temperature difference does not return to RANGE B, the outdoor unit is deemed abnormal.

●If the temperature difference returns to RANGE B, the next 20 minutes is an allowance period. If the difference enters RANGE A during the allowance, defrosting ends and the hot adjustment starts. If the difference does not enter RANGE A during the allowance, the outdoor unit is deemed abnormal.

##### ② During compressor ON in hot adjustment

After 30 minutes of defrosting in hot adjustment, if the temperature difference is still in RANGE C, the outdoor unit is determined to be abnormal.

##### ③ During compressor OFF

After 20 minutes of thermostat OFF, if the indoor coil thermistor reads -25°C or below, the outdoor unit is determined to be abnormal.

#### (5) Indoor coil thermistor abnormality detection

An abnormality can be detected during compressor ON, except for the following.

- For the first 30 minutes after the temperature difference between the indoor coil temperature and room temperature enters the RANGE C.
- When the temperature difference enters the RANGE C until it moves to the RANGE B.

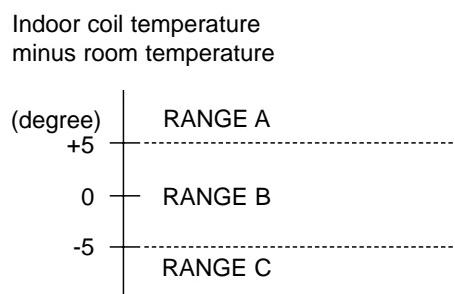
#### (6) Defrosting operation

After the outdoor unit starts the defrosting operation, when the temperature difference between the indoor coil temperature and room temperature gets out of RANGE A and into RANGE B, the indoor unit starts the defrosting mode. After the outdoor unit stops the defrosting operation, when the temperature difference returns to the RANGE A, the indoor unit stops the defrosting mode. While the indoor unit is in the defrosting mode, the indoor fan and the booster heater stop.

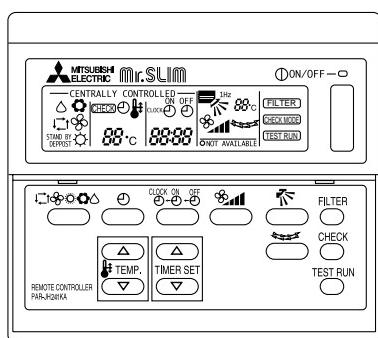
\*1 RANGE A : Indoor coil temperature is more than 5 degrees above room temperature.

RANGE B : Indoor coil temperature is within 5 degrees either way of room temperature.

RANGE C : Indoor coil temperature is more than 5 below room temperature.



## 2-4 AUTO operation (Automatic COOL/HEAT change over operation)



### <How to operate>

- ① Press POWER ON/OFF button.
- ② Press the button to display “”.
- ③ Press the TEMP. button to set the desired temperature.

**NOTE:** The set temperature changes 1°C when the or button is press one time Auto 19 to 28°C.

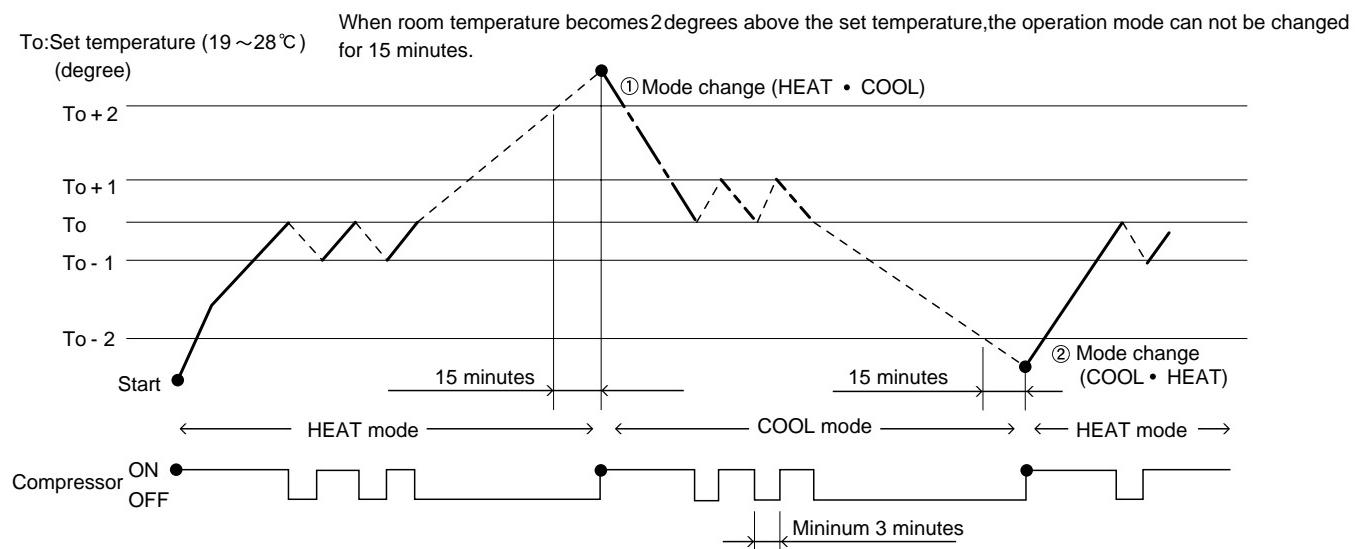
●“AUTOMATIC” works to change by itself the operation mode either to cooling or heating according to the room temperature.

### (1) Initial mode

- ① When AUTO operation starts after unit OFF.
  - If the room temperature is higher than the set temperature, operation starts in COOL mode.
  - If the room temperature is equal to or lower than the set temperature, operation starts HEAT mode.
- ② When AUTO operation starts after COOL or HEAT operation, the previous mode continues.

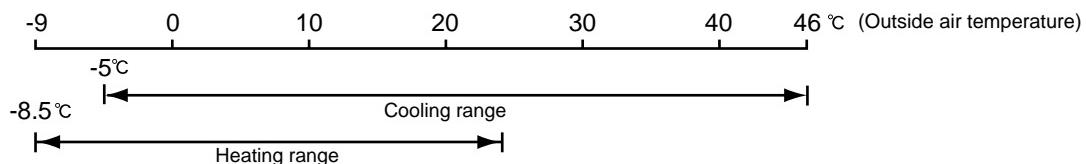
### (2) Mode change

- ① HEAT mode changes to cool mode when 15 minutes have passed since the room temperature became 2 degrees above the set temperature.
- ② COOL mode changes to HEAT mode when 15 minutes have passed since the room temperature became 2 degrees below the set temperature.

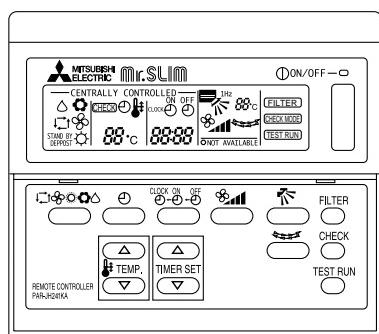


### (3) Temperature range

AUTO operation is available under the outside air temperatures as follows.

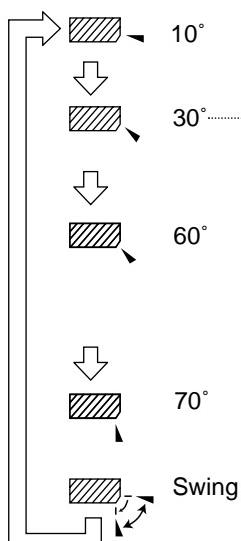


## 2-5 Auto vane control



### <How to operate>

To change the airflow direction, press  $\nwarrow$  button.



Changes by pressing  
the  $\nwarrow$  button.

Available in COOL operation with fan speed on HIGH or in HEAT operation.  
Unavailable in DRY operation.  
If fan speed changes from LOW to HIGH during 30° downward airflow in COOL mode, the direction automatically changes to 10°.

### (1) COOL/DRY operation

At the start-up of COOL or DRY operation, the airflow direction is automatically set to 10°. After, it can be changed to another direction with  $\nwarrow$  button on the remote controller.

#### <Auto return>

When 60° or 70° airflow is set with fan speed on LOW, "AUTO RETURN" appears below the room temperature display. One hour later the direction changes to 10°, automatically and "AUTO RETURN" disappears.

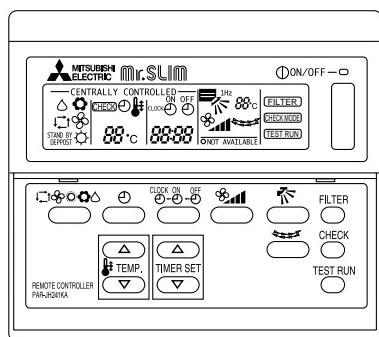
### (2) HEAT operation

At the start-up of HEAT operation, discharge direction depends on the setting of the last operation.

After, it can be changed to another direction with  $\nwarrow$  button. The discharge direction shifts to 10° regardless of the remote controller settings under any of the following conditions.

- Thermostat OFF
- Defrosting
- Indoor fan speed EXTRA-LOW in hot adjustment

## 2-6 TIMER operation



### <Timer function>

AUTO STOP .....The air conditioner stops after the set time lapses.

AUTO START .....The air conditioner starts after the set time lapses.

AUTO OFF .....Timer is not active.

### <How to operate>

1. Press POWER ON/OFF button.

2. Press  $\ominus$  button to select AUTO STOP or AUTO START.

3. Press  $\ominus$  button to set desired time.

Time setting is in 1 hour units for up to 24 hours.

Each time HOURS button is pressed, set time increases by 1 hour.

When HOURS button is pressed and held, the set time increases by 1 hour every 0.5 seconds.

4. To cancel the timer operation, press POWER ON/OFF button.

### <Timer setting example>



This setting will stop the air conditioner in 8 hours.  
With the lapse of time, time display changes in 1 hour units, showing remaining time.

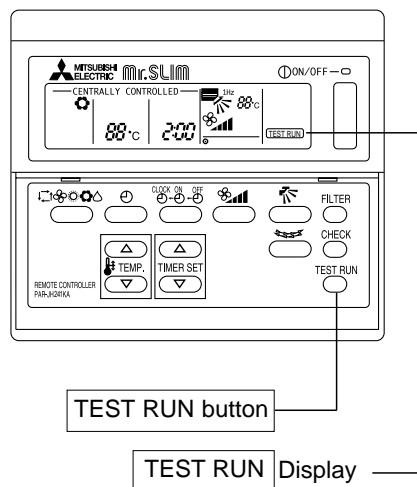
## 2-7 Test run

### <Before test run>

- After installing, wiring, and piping the indoor and outdoor units, check for refrigerant leakage, looseness in power supply or control wiring, and mistaken polarity.
- Use a 500-volt measure to check the resistance between the power supply terminal block and ground to make sure that it is at least 1.0M .

Attention : Do not use the air conditioner if resistance is less than 1.0M .

Remote controller



\*The above figure shows the state of TEST RUN at cooling operation.

1	Turn on main switch.12 hours before proceeding to step 2 to allow for crankcase heater operation.
2	Push the TEST RUN button twice and indication of TEST RUN will be shown on the liquid crystal display.
3	Press the $\square \triangle \diamond \circlearrowleft \diamond \circlearrowright$ button to display $\square$ ,COOL/DRY(or HEAT)to confirm that cool (or warm)air is blown out. (At heating operation,there may be a short delay before warm air begins to blow out.)
4	Push $\diamond \square$ button LOW/HIGH to check that the fan speed changes properly.
5	Check the operation of outdoor unit fans.This unit controls the rotation speed and performance capacity of fans. In some cases,it may rotate at low speed as the condition of outside air requires and the speed will be kept unless the performance has become deficient. Therefore,when the condition of outside air demands,there may be such cases as the fan stops or rotates reversely. Please note that these symptoms are not malfunction.
6	After the check is finished leave the test run mode,push the power ON/OFF button. It can also be stopped by pushing the timer MODE button.

- When a TEST RUN is started,the timer shall be set to 2 hours. The unit will automatically turn off after 2 hours.

(1) Indoor coil temperature code

During the test run, the indoor coil temperature code from 1 to 15 is displayed on the remote controller instead of room temperature. The code should fall with the lapse of time in normal COOL operation, and should rise in normal HEAT operation.

Code	1	2	3	4	5	6	7	8
Indoor coil temperature	-40~1°C	~10°C	~15°C	~20°C	~25°C	~30°C	~35°C	~40°C
Code	9	10	11	12	13	14	15	
Indoor coil temperature	~45°C	~50°C	~55°C	~60°C	~70°C	~90°C	Thermistor abnormality	

(2) Trouble during test run

- If the unit malfunctions during the test run, refer to section 10 in this manual entitled "TROUBLESHOOTING."
- When the optional program timer is connected to the conditioner, refer to its operating instructions.

## 2-8 Emergency operation

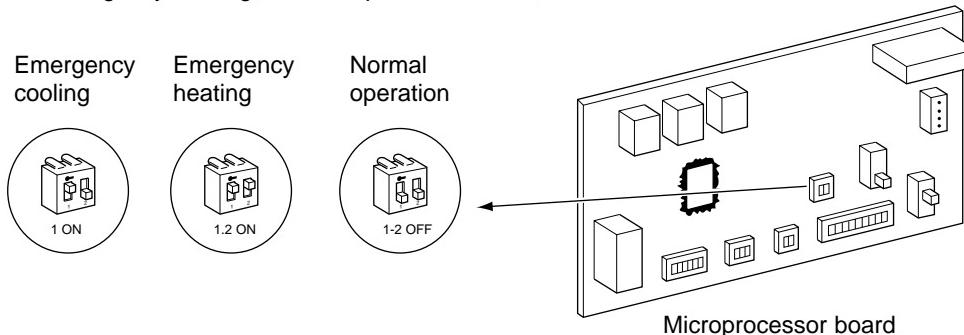
When the remote controller or microprocessor malfunctions but all other parts are normal, emergency operation is started by setting the dip switch SW3 on the indoor controller board.

**<Before emergency operation>**

1. Make sure the compressor and the indoor fan are operating normally.
  2. Locate the defect with the self-diagnostic function. When the self-diagnostic function indicates "protective function is working", release the protective function before starting the emergency operation.
- CAUTION: When the self-diagnostic function indicates a check code of "P5" (drain pump malfunction), DO NOT start the emergency operation because the drain may overflow.

**<How to operate>**

1. For emergency cooling, set the dip switch SW3-1 to ON and SW3-2 to OFF.  
For emergency heating, set the dip switch SW3-1,2 to ON.



2. Turn ON the outdoor unit breaker and then ON the indoor unit breaker.  
Emergency operation will now start.
3. During emergency operation, the indoor fan operates on high speed, but the swing louvers and the auto vanes do not operate.
4. To stop emergency operation, turn OFF the indoor unit breaker.

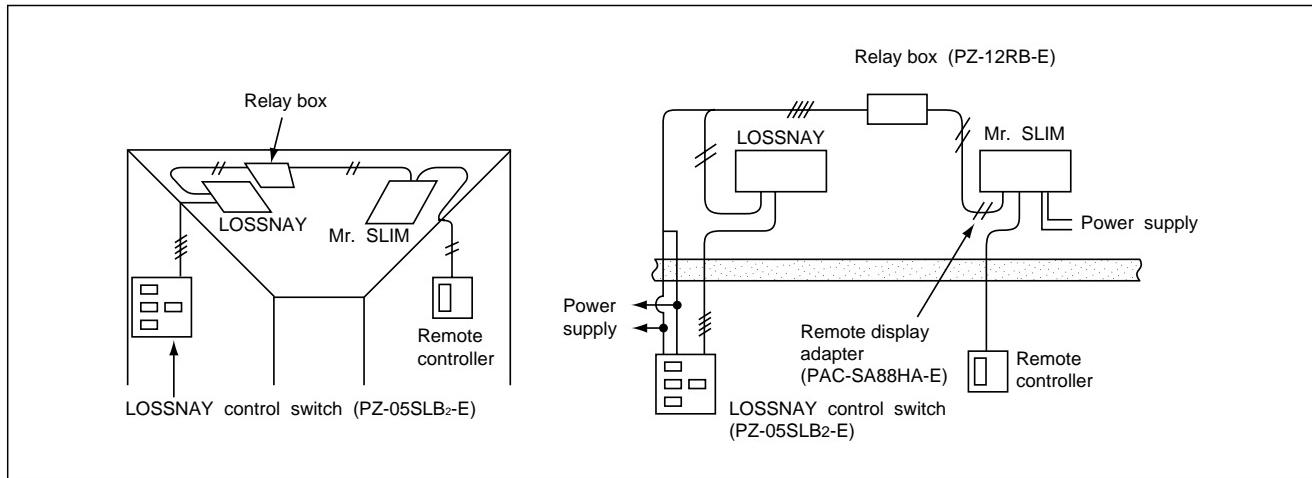
NOTE: The remote controller POWER ON/OFF button can not start/stop emergency operations.

CAUTION: Do not use emergency cooling for more than 10 hours, as the indoor coil may freeze.

## 2-9 Interlock with ventilation system (LOSSNAY)

Mr. SLIM/LOSSNAY interlock operation is available by using the optional parts listed below.

### (1) System organization



- (2) LOSSNAY models connectable to Mr. SLIM are:  
 LGH-15RS-E, LGH-50RS-E  
 LGH-25RS-E, LGH-80RS-E  
 LGH-35RS-E, LGH-100RS-E

### (3) Required parts are:

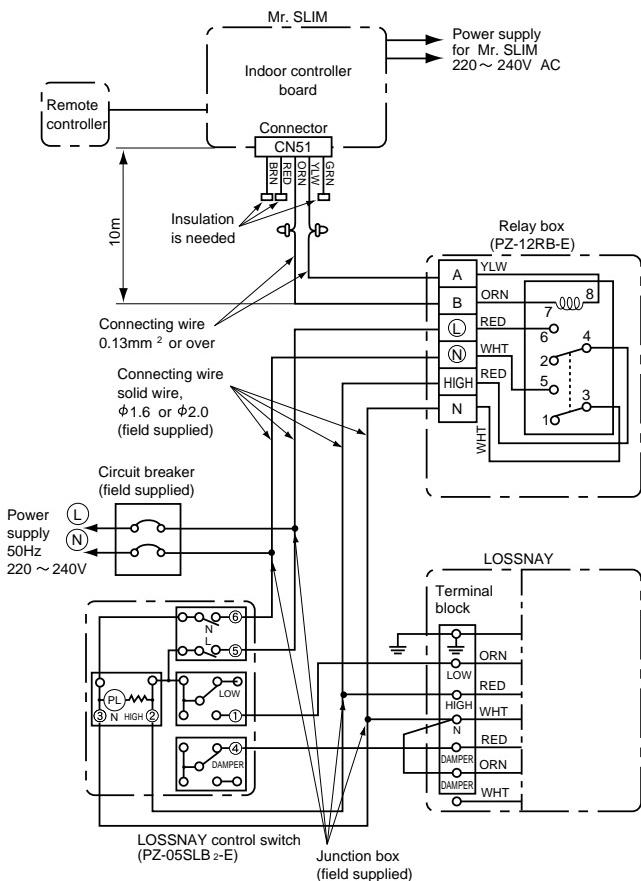
- Relay box (PZ-12RB-E)…Contact capacity 10A
- Remote display adapter (PAC-SA88HA-E)…An optional part for Mr. SLIM
- LOSSNAY control switch (PZ-05SLB2-E)…For LOSSNAY individual operation

### (4) Operation

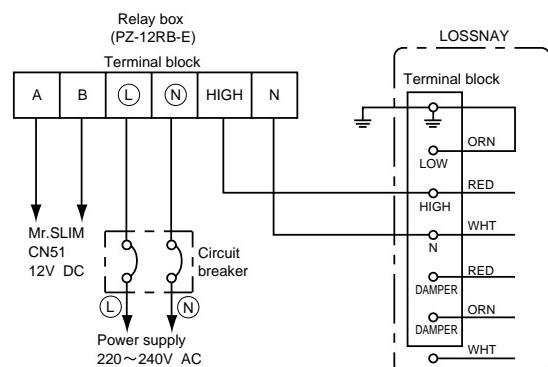
- ①LOSSNAY turns ON/OFF according to Mr. SLIM ON/OFF
- ②While Mr. SLIM is OFF, LOSSNAY individual operation is available by using the LOSSNAY control switch.  
When Mr. SLIM turns OFF with the LOSSNAY control switch at ON, LOSSNAY will continue to operate.

### (5) Wiring.

#### ①When the LOSSNAY control switch is used:



#### ②When the LOSSNAY control switch is not used:



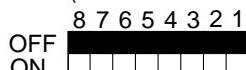
NOTE: For further information, refer to the LOSSNAY technical & service manual.

## 2-10 Dip switch and jumper connector functions

Each figure shows the initial factory setting.

### [1] On remote controller board

#### (1) SW17(Address selector)



SW17-1 ~ 6) For address setting

SW17-7) When two remote controllers are used, this switch sets the controller function.

OFF: The remote controller is set as a main controller.

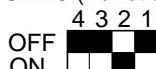
ON: The remote controller is set as a sub controller.

SW17-8) Switch for system back-up

OFF: Without back-up

ON: With back-up

#### (2) SW18 (Function selector)



SW18-1) Switch for timer

OFF: single day

ON: timer every day

SW18-2) Switch for filter sign

OFF: filter sign absent

ON: filter sign present

SW18-3) Switch for filter sign time setting.

OFF: 100 Hr

ON: 2500 Hr

SW18-4) Not yet used

### [2] On indoor controller board

For PKH-1.6FKA-E / PKH-2FKA-E

#### (1) SW1 (Mode selector)



SW1-1) Switch that changes between FAN mode and AUTO mode.

OFF: Fan mode for models with heat pump.

ON: AUTO mode for models with heat pump.

SW1-2) Not for use

SW1-3) Switch for auto vanes.

OFF: Unit without auto vanes.

ON: Unit with auto vanes.

SW1-4) Not for use

SW1-5) Switch to change the temperature to start coil frost prevention.

OFF: -3°C(For previous special models)

ON: 1°C(For all current models)

SW1-6) Switch for set temperature adjustment in HEAT mode.

During HEAT operation, warm air collects near the ceiling. When the indoor unit is installed near the ceiling, the temperature read by room temperature thermistor differs from the actual living-space temperature by about 4 degrees. Therefore, the room temperature read by room temperature thermistor must be lowered by 4 degrees.

OFF: 4-degree adjustment

ON: No adjustment

SW1-7) Switch for fan speed during thermostat OFF in HEAT operation.

OFF: EXTRA LOW

ON: LOW

SW1-8) Switch for fan speed during thermostat OFF in HEAT operation.

OFF: EXTRA LOW or LOW (set with SW1-6)

ON: LOW or HIGH (set with remote controller)

SW1-9) Switch for detecting abnormalities in the outdoor unit abnormality detection.

OFF: When an abnormality occurs, it is detected.

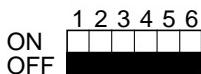
ON: Even if an abnormality occurs, it can not be detected.

SW1-10) Switch for auto restart function.

OFF: This function does not work.

ON: This function works.

(2) SW2 (Address selector)



Used in setting the unit-address for group control.  
For further information, refer to page 68.

(3) SW3 (Emergency operation switch)

Normal operation



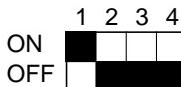
For emergency cooling



For emergency heating



(4) SW5 (Model selector)



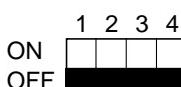
SW5-1) Power supply ( ON :230V/240V )  
OFF:220V

SW5-2) OFF:For models with heat pump.  
ON:For models without heat pump.

SW5-3) Not for use

SW5-4) This switch is unavailable for PKH-FK(S)A-E. Keep this switch at OFF.

(5) SW6 (Model selector)



	Single control	Twin control	Triple control
SW6-1	OFF	ON(Twin NO.1)	ON(Triple NO.1)
SW6-2	OFF	ON(Twin NO.2)	ON(Triple NO.2)
SW6-3	OFF	OFF	ON(Triple NO.3)
SW6-4	OFF	OFF	ON

(6) SW7 (Model selector)

Switch to set the output of phase-controlled indoor fan motor.

Address setting is available at any time.

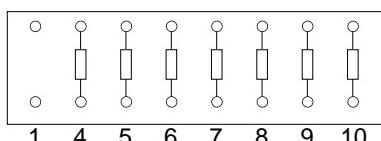
The initial factory setting by is based on each capacity.

Service Ref.	PKH-1.6FKA-E	PKH-2FKA-E
SW7	1 2 3 ON OFF	1 2 3 ON OFF

[3] On indoor controller board

For PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E

(1) J1 (Mode selector)



J1-1) Switch that changes between FAN mode and AUTO mode.

Provided: Fan mode for models with heat pump.

Not provided: AUTO mode for models with heat pump.

J1-4) Switch for drain pump (For optional parts)

Provided: The drain pump works in only COOL operation.

Not provided: The drain pump works in both COOL and HEAT operation.

J1-5) Switch to change the temperature to start coil frost prevention.

Provided : 1°C (For all current models)

Not provided: -3°C (For previous special models)

- J1-6) Switch for set temperature adjustment in HEAT mode  
 During HEAT operation, warm air collects near the ceiling. When the indoor unit is installed near the ceiling, the temperature read by room temperature thermistor differs from the actual living-space temperature by about 4 degrees. Therefore, the room temperature read by room temperature thermistor must be lowered by 4 degrees.  
 Provided : 4-degree adjustment  
 Not provided : No adjustment
- J1-7) Switch for fan speed during thermostat OFF in HEAT operation.  
 Provided : EXTRA LOW  
 Not provided : LOW
- J1-8) Switch for fan speed during thermostat OFF in HEAT operation.  
 Provided : EXTRA LOW or LOW (set with J1-7)  
 Not provided : Low or HIGH (set with remote controller)
- J1-9) Switch for detecting abnormalities in the outdoor unit abnormality detection.  
 Provided : When an abnormality occurs, it is detected.  
 Not provided : Even if an abnormality occurs, it can not be detected.
- J1-10) Switch for auto restart function.  
 Provided : This function does not work.  
 Not provided : This function works.

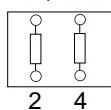
(2) SW2 (Address selector)

	1 2 3 4 5 6	Used in setting the unit-address for group control.
ON		For further information, refer to page 66.
OFF		

(3) SW3 (Emergency operation switch)

Normal operation	For emergency cooling	For emergency heating
ON		
OFF		

(4) J5 (Model selector)



- J5-2) Provided : For models with heat pump.  
 Not Provided : For models without heat pump.  
 J5-4) This jumper is unavailable for PKH-FK(S)A-E.

(5) SW6 (Model selector)

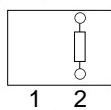
	1 2 3 4	Single control	Twin control	Triple control
ON		SW6-1	OFF	ON(Twin No.1)
OFF		SW6-2	OFF	ON(Twin No.2)
		SW6-3	OFF	ON(Triple No.3)
		SW6-4	OFF	ON

(6) SW7

ON		ON		ON	
OFF		OFF		OFF	

SW7-2) POWER SUPPLY ( OFF: 220V )  
 ( ON : 240V )

(7) J9 (Model selector)



- J9-1) Not provided }  
 J9-2) Provided } PKH-FK(S)A-E

## 2-11 INDOOR FAN CONTROL

Indoor fan relay output.

(a) During fan ON

The indoor fan relay turns ON. One second later, the phase control will start.

(b) During fan OFF

The phase control turns OFF. One second later, the indoor fan relay will turn OFF.

### 3. OUTDOOR UNIT CONTROL

#### 3-1 Outdoor fan control

The rotational frequency of outdoor fan is phase-controlled according to the outdoor coil temperature. This control allows the cooling operation even with the low outside-air temperature and the heating operation even with the high outside-air temperature.

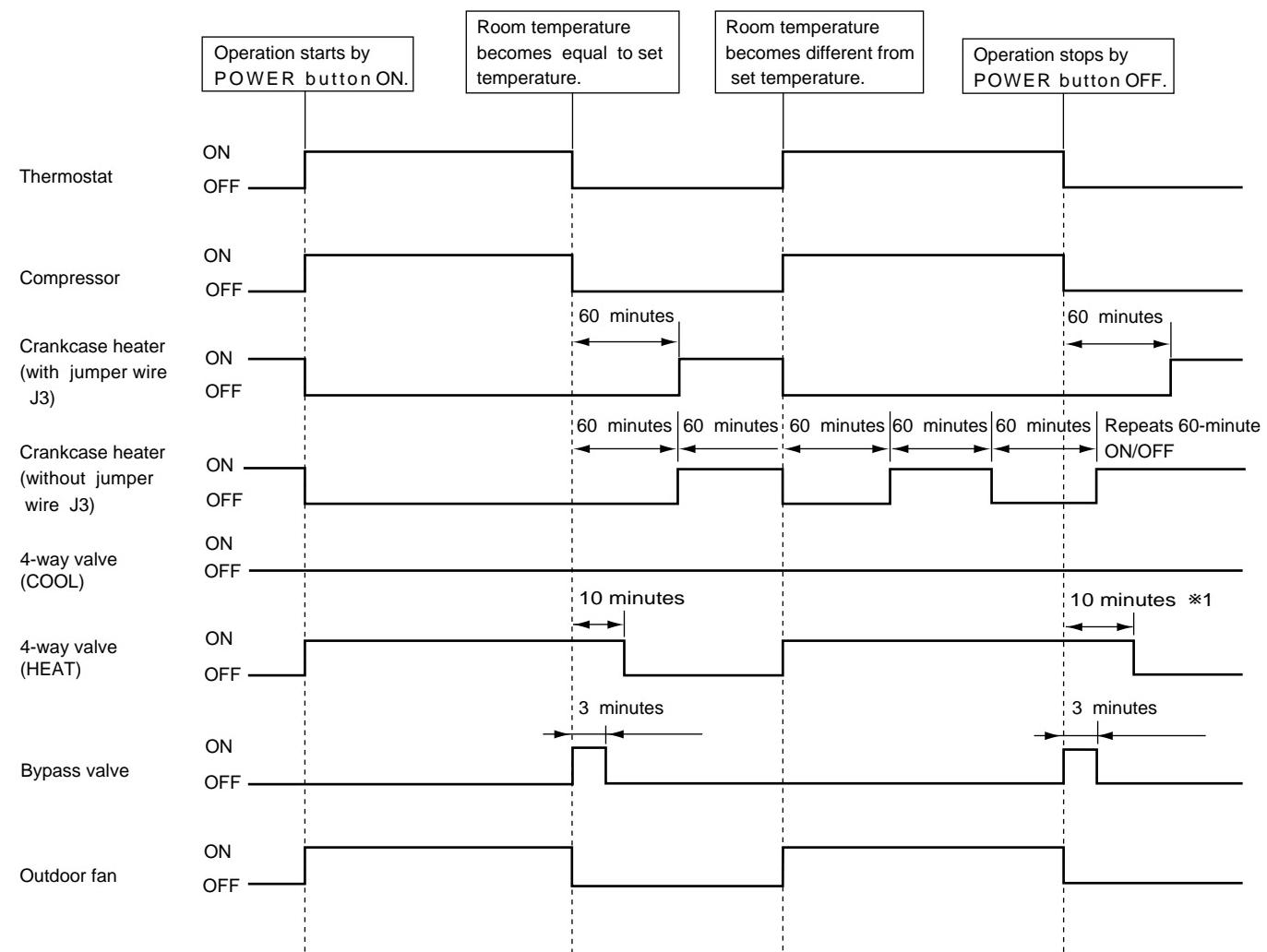
#### 3-2 Outdoor unit control

The outdoor unit turns ON/OFF the cooling/heating operation according to orders given from the indoor unit.

#### 3-3 Protective functions

- ① If an reversed-phase, an open phase, or an indoor controller abnormality is detected, the outdoor unit will stop operation and the check mode will start. (For the check mode details, see page 57.)
- ② If a protective function works, the compressor will stop running. Three minutes later, the compressor will restart. If the protective function works again, the compressor will stop running and the check mode will start.
- ③ The protective function is memorized.
- ④ The memory is cleared when the POWER ON/OFF button on the remote controller is turned OFF. However, the check mode display continues until the outdoor unit receives the "operation ON" command from the indoor unit.

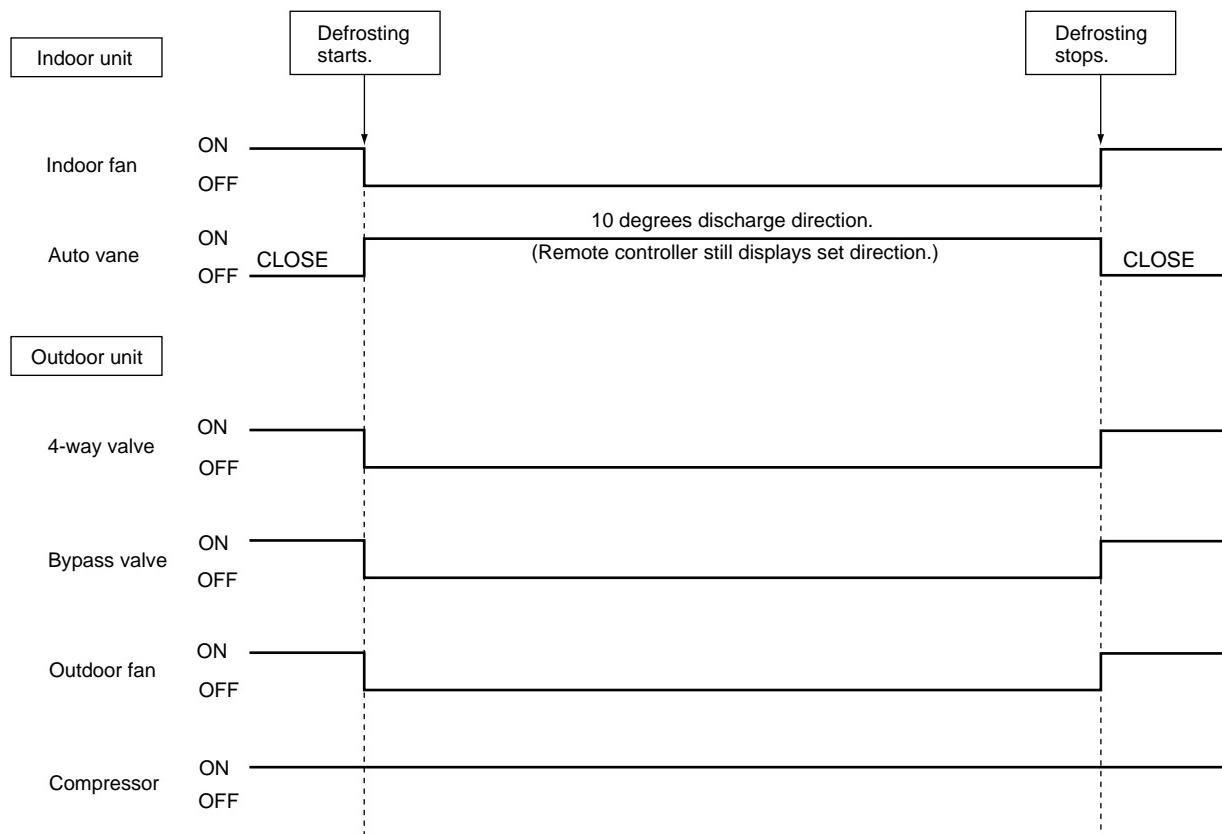
#### 3-4 COOL/HEAT operation time chart



\*1 If compressor restarts within 10 minutes, 4-way valve remains ON.

### 3-5 Defrosting in HEAT mode

#### <Defrosting time chart>



#### (1) Start conditions

- A. When all of the following conditions are satisfied, defrosting will start. However, when the bypass valve turns OFF, defrosting starts 10 minutes later.
- More than seven minutes have passed since the compressor start-up.
  - The outdoor coil thermistor reads -5°C or below.
  - The outdoor fan motor output step is 100%.
  - Total time of compressor operation exceeds 30 minutes, and the outdoor coil temperature has fallen by 8 degrees or more in comparison with that of 10 minutes after the compressor start-up.
- NOTE:** The outdoor coil temperature of 10 minutes after the compressor start-up is memorized until the defrosting operation has ended.
- B. When all of the following conditions are satisfied, defrosting will start.
- The same as above (a) ~ (c) in item A
  - Total time of compressor operation exceeds "defrost interval".
- Further information on the defrost interval is described in (3).
- C. After the total time of compressor operation exceeds the defrost interval, the thermostat repeats ON/OFF three times. Two minutes after the fourth "ON" of the thermostat, if the outdoor coil thermistor reads -5°C or below and the fan output output is 100%, defrosting will start.
- NOTE:** The count of the thermostat ON/OFF is cleared by the compressor-OFF command or defrosting start-up.

#### (2) During defrosting

- Even if the thermostat turns OFF, defrosting continues.
- The 4-way valve, bypass valve, outdoor fan, and indoor fan are OFF.

### (3) Defrost interval

The defrost interval time is determined as follows.

- Initial defrost interval is 50 minutes.
- The defrost interval after defrosting depends on the preceding defrosting time as shown below.

Defrosting operation time	Next defrost interval
3 minutes or below	120 minutes
3 to 7 minutes	80 minutes
7 to 10 minutes	60 minutes
10 to 15 minutes	40 minutes
15 minutes (Maximum)	30 minutes

NOTE1:If the unit stops during defrosting , the next defrost interval will be 50 minutes.

NOTE2:If a protection function works for the first time during defrosting, the compressor will stop.

After a 3-minute time delay, defrosting will restart. In this case, a 3-minute time delay is included with the defrosting time.

If the protection function works for the second time, the unit stops operation and displays the check code.

The next defrost interval will be 30 minutes.

NOTE3:When the defrosting has ended, the total time of the compressor operation is cleared off.

### (4) Termination conditions

Defrosting finishes when any of the following conditions are satisfied.

- ①Defrosting has continued for 15 minutes.
- ②Outdoor coil thermistor reads 22°C or above for the first 75 seconds after defrosting start-up.
- ③Outdoor coil thermistor reads 8°C or above after the 75-second defrosting.
- ④Power ON/OFF button is turned OFF during defrosting.

## 3-6 Actuators

### (1) Bypass valve control

<Cooling mode>

- ①When the unit stops due to the coil frost prevention, the bypass valve turns ON. When one hour has passed since the compressor stopped, the bypass valve returns to OFF.
- ②When the compressor operates with the bypass valve at ON for more than 30 minutes, the bypass valve turns OFF.
- ③When the compressor stops with the bypass valve at OFF, the bypass valve turns ON and remains ON for three minutes.

<Heating mode>

- ①When the unit starts for the first time after the circuit breaker has been turned ON, or when it starts after the compressor OFF of 30 minutes or more, if the outdoor coil thermistor reads 12°C or more, the bypass valve turns ON.
- ②When the high pressure switch (63H1) works, the bypass valve turns ON.
- ③When the bypass has been ON for 30 minutes:
  - If the high pressure switch has already returned, the bypass valve turns to OFF.
  - If not, the fan output step keeps 70 for three minutes. Meanwhile, if the high pressure switch returns, the bypass valve turns OFF. Otherwise the normal fan control starts.
- ④When the operation mode changes or stops, the bypass valve turns ON and remains ON for three minutes.

<Defrosting operation>

- ①The bypass valve is OFF.

### (2) Crankcase heater control

- ①With jumper wire J3

The crankcase heater is ON from when the power is turned ON until the compressor starts, and then turns ON one hour after the compressor stops.

- ②Without jumper wire J3

The crankcase heater is ON from when the power is turned ON until the compressor starts, and repeats 1-hour ON and 1-hour OFF.

### 3-7 Service functions

#### (1) Compulsory defrosting

- ① When all of the following conditions are satisfied, pressing SW2 starts the compulsory defrosting.
  - During HEAT mode
  - The compressor is ON.
  - The outdoor coil temperature is being displayed by LED. (Outdoor controller board dip switch SW3-1 : OFF, SW3-2 : ON)
  - The outdoor coil thermistor reads 8°C or below.
- ② The operation state and the termination conditions of the compulsory defrosting are the same as those of the normal defrosting. As an exception, the defrost interval after the defrosting completion is 50 minutes.

#### (2) Fixed fan-output

While the compressor is operating (except during defrosting) and the fan output step is indicated by LED, pressing SW2 fixes the fan output. The fixed fan-output can be released when any of the following conditions are satisfied.

- ① SW2 is pressed again.
- ② SW3 setting is changed.
- ③ The compressor stops.
- ④ Defrosting operation starts.

#### (3) Function of switches on the outdoor controller board

SW1: Clears the check code memory (push-button switch)

SW2: Switches the output state indication and the check code display (push-button switch)

SW3-1,2: Switches the output state indication items (dip switch)

For further information, refer to page 59.

#### (4) 100% fan output

Fan output is fixed to 100% by shorting the connector CN22. However, the fan stops during compressor OFF or defrosting. Open-circuit of CN22 restarts the normal fan control.

#### (5) Time shortening

Short circuit of the connector CN21 shortens the time as follows

- ① Fan control period: 30 seconds → 3 seconds
- ② Three-minutes time delay function : 3 minutes → 3 seconds
- ③ Max. time of defrosting : 15 minutes → 15 seconds
- ④ Defrost interval : 30 ~ 120 minutes → 3 ~ 12 seconds
- ⑤ Compressor ON/OFF time for bypass valve ON/OFF : 30 minutes → 3 seconds
- ⑥ Compressor ON time to start other functions : x minutes → x seconds
- ⑦ Crankcase heater operation : 1 hour → 6 seconds

## 1.TROUBLE IN TEST RUN

Symptom	Cause	Check points																				
The display "CENTRALLY CONTROLLED" on remote controller dose not disappear.	1) Wrong address setting of remote controller/indoor controller board. 2) Timer adapter is connected to the remote controller. 3) Signal transmission error between indoor unit and remote controller.	1) Check the address setting of remote controller and indoor controller. 2) Make sure the timer adapter is used correctly. 3) ① Turn another remote controller's DIP SW17-7 ON to make it sub controller. ② Connect the sub controller to the unit, and turn circuit breaker ON. ● If the display "centrally controlled" disappears, replace the original remote controller. ● If the display remains the same, replace the indoor controller board.																				
When remote controller POWER button is turned ON, the check code "EO"appears.	1) Signal transmission error between indoor unit and remote controller	1) ① Connect a sub remote controller. ② Turn circuit breaker ON. If the display "centrally controlled" remains, replace the indoor controller board. ③ If the display disappears, turn the remote controller POWER button ON and check as follows. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th></th> <th>Remote controller</th> <th>Sub remote controller</th> <th>Malfunction</th> </tr> <tr> <td>1</td> <td>Operating Display</td> <td>EO Display</td> <td>Malfunction of indoor Unit</td> </tr> <tr> <td>2</td> <td>Operating Display</td> <td>Operating Display</td> <td>Malfunction of Remote controller</td> </tr> <tr> <td>3</td> <td>No Display</td> <td>EO Display</td> <td>Malfunction of indoor Unit and Remote Controller</td> </tr> <tr> <td>4</td> <td>No Display</td> <td>Operating Display</td> <td>Malfunction of Remote controller</td> </tr> </table>		Remote controller	Sub remote controller	Malfunction	1	Operating Display	EO Display	Malfunction of indoor Unit	2	Operating Display	Operating Display	Malfunction of Remote controller	3	No Display	EO Display	Malfunction of indoor Unit and Remote Controller	4	No Display	Operating Display	Malfunction of Remote controller
	Remote controller	Sub remote controller	Malfunction																			
1	Operating Display	EO Display	Malfunction of indoor Unit																			
2	Operating Display	Operating Display	Malfunction of Remote controller																			
3	No Display	EO Display	Malfunction of indoor Unit and Remote Controller																			
4	No Display	Operating Display	Malfunction of Remote controller																			
When remote controller POWER button is turned ON, operating display appears, but disappears soon.	1) Short circuit of indoor/outdoor connecting wire 2) Short circuit of transmission wire. 3) Short circuit of drain sensor heater circuit. 4) Wrong operation of remote controller due to noise wave emitted by other appliances.	1), 2) Check the wire 3) Measure the resistance of the drain sensor connector CN50 ① - ③. Normal resistance should be 82 . 4) Turn the circuit breaker OFF, and then turn ON. If the remote controller remains abnormal, despite the above measures, replace the indoor controller board.																				
Despite turning POWER button ON, the remote controller display does not appear.	1) Damaged remote controller. 2) Short circuit of transmission wire. 3) Bad contact of indoor CN40. 4) CN40 is attached to a sub unit. 5) Damaged transformer. 6) Bad contact of CN4T. 7) Blown fuse. 8) Circuit breaker OFF.	1) Measure the voltage between terminals of remote controller. If no voltage, remove the terminals and measure the voltage between wires. If the voltage is between 6VDC and 12VDC, replace the remote controller. 2) ~ 8) Check each point. If it is not defective, replace the indoor controller board.																				

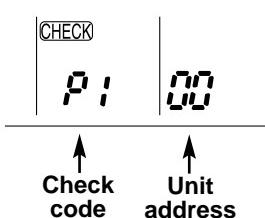
## 2. SELF DIAGNOSTIC FUNCTION WITH REMOTE CONTROLLER

### 2-1 When malfunction occurs during operation

When a malfunction occurs, the indoor and outdoor units stop and the malfunction is displayed on the LCD of the remote controller.

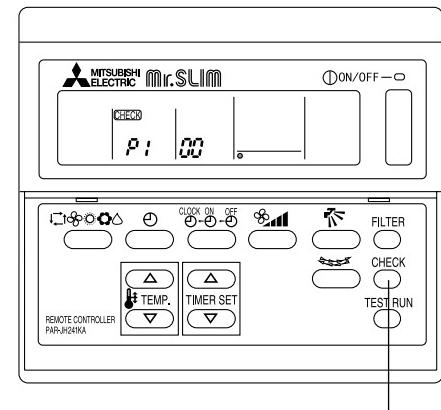
- (A) ON the set temperature display part, "CHECK" appears, and the unit address and the check code are displayed alternately at one-second intervals. (Check mode)

#### Example



- (2) When one remote controller controls several units in the group control, the LCD shows the unit address and check code of the first malfunctioning unit.  
(3) To cancel the check mode, press the  $\ominus$ ON/OFF button. In remote ON/OFF control, press the remote  $\ominus$ ON/OFF switch. In centralized control, turn OFF the  $\ominus$ ON/OFF button of centralized controller.

#### CHECK mode



CHECK button

**NOTE:** The latest check code is memorized, even if the check mode is cancelled by the way mentioned above. It takes 60 seconds maximum to display the memorized check code.

### 2-2 How to use the self diagnostic function for service

#### A. For normal control with one unit and one remote controller

- (1) Pressing the  $\ominus$ CHECK button on the remote controller twice starts the self diagnostic function.  
(2) During the self diagnostic function, "CHECK" appears at two positions on the remote controller display. Then, at least 10 seconds later, the unit address and the check code is alternately displayed at one-second intervals.  
(3) Check and repair the unit according to the check code. (Refer to the next page.)

### 2-3 For group control using one remote controller

- (1) Press the  $\triangle$ TEMP. button or  $\nabla$  TEMP. button on the remote controller to advance or go back to the unit address. Each time  $\triangle$ TEMP. button is pressed, the unit address advances by one. Each time  $\nabla$ TEMP. button is pressed, the unit address goes back by one.  
The check code and the unit address, appear alternately.  
(2) The check code "U8" means no malfunction has occurred since installation.  
The check code "EO" means the following conditions:
  - The unit address displayed on the remote controller does not apply to any unit.
  - Power is not supplied to the unit.
  - Signal transmitting / receiving circuit is abnormal.  
(3) Check and repair the unit according to the check code. (Refer to the next page.)

Check code	Diagnosis of malfunction	Cause	Check points
EO	Signal transmitting/receiving error (Indoor controller does not respond to remote controller signal.)	During individual unit control 1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal.	1) Check the transmission wire. 2) Check with another remote controller. If "EO" is still indicated, replace the indoor controller board. If other check code appears. replace the original remote controller.
P1	Abnormality of room temperature thermistor (RT1)	1) Bad contact of thermistor 2) Damaged thermistor	1) Check the thermistor. 2) Measure the resistance of the thermistor. Normal resistance should be as follows. 0°C...15k      30°C ....4.3k 10°C .....9.6k    40°C.....3.0k 20°C .....6.3k If the resistance is normal, replace the indoor controller board.
P2	Abnormality of indoor coil thermistor (RT2)		
P3	Signal transmission error (Remote controller does not respond to indoor controller signal.)	1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal. 3) Wrong operation due to noise wave emitted by other appliances	1) Check the transmission wire. 2) Check with another remote controller. If "P3" is still indicated, replace the indoor board. If other check code appears, replace the original remote controller. 3) Short-circuit between ① and ② of CN40 and attach CN40 to the following units. ● Second unit in twin control ● Second and third units in triple control ● Sub units in group control
P4	Abnormality of drain sensor	1) Bad contact of transmission wire 2) Damaged thermistor	1) Check the connector. 2) Measure the resistance of the thermistor ④ - ⑤. As for the normal resistance, refer to the case of P1. If the resistance is normal, replace the indoor controller board.
P5	Malfunction of drain pump	1) Malfunction of drain pump 2) Damaged drain sensor	1) Check the drain pump. 2) ● Check the drain sensor. ● Check the drain sensor heater. Normal resistance should be 82 . If the resistance is normal, replace the indoor controller board.
P6	Coil frost protection is working.	1) Short cycle of air cycle 2) Dirty air filter 3) Damaged fan 4) Abnormal refrigerant	1) Clear obstructions from the air cycle. 2) Clean the air filter 3) Check the fan. 4) Check the refrigerant temperature.
P7	System error	1) Wrong address-setting 2) Signal transmitting/receiving circuit of remote controller is abnormal. 3) Wrong SW6-setting	1) Check the address-setting. 2) Check with another remote controller. If check code other than "P7" appears, replace the original remote controller. 3) Check SW6 setting.
P8	Abnormality in outdoor unit	1) Wrong wiring of indoor/outdoor connecting wire 2) Reversed phase 3) Protection device is working 4) Damaged outdoor coil thermistor	1) Check the indoor/outdoor connecting wire. 2) Change the connection of electric wiring. 3) Check the protection device. 4) Measure the resistance of the outdoor coil thermistor. If the resistance is normal, replace the outdoor controller board.

### 3. SERVICE DATA INDICATION BY SWITCHES ON OUTDOOR CONTROLLER BOARD

Setting dip switches SW2 and SW3 on the outdoor controller board enables LED to show the output state and check code. Output state is shown by LED lighting, and check code by blinking.

SW1 : Turning SW1 ON clears the check code. If SW1 is turned ON while the check code is blinking , the indication changes to output state indication.

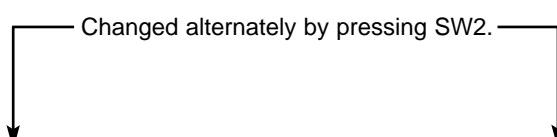
**NOTE :** SW1 is usually available independent of SW3 setting. As an exception, when the check code shows a reversed phase or an open phase during the power-on-reset state, SW1 is not available.

SW2 : SW2 is turned ON by pressing, and OFF by releasing.

When SW3-1 and SW3-2 are OFF, pressing SW2 changes indication between output state and check code alternately.

When SW2 is turned On with SW3-1 OFF and SW3-2 ON, the compulsory defrosting starts.

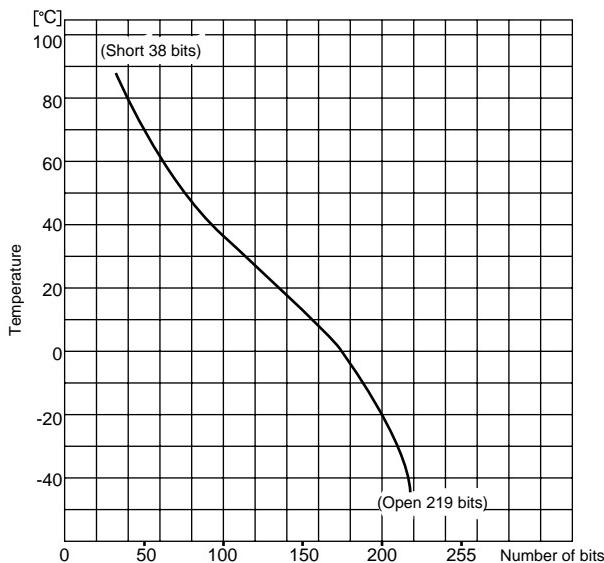
SW3 : Output state indication items depend on the combination of SW3-1 ON/OFF and SW3-2 ON/OFF.



	Check code	Output state	Outdoor coil temperature (bit)	Fan output step (bit)	Total time of compressor operation(Hr)
SW3-1	OFF	OFF	OFF	ON	ON
SW3-2	OFF	OFF	ON	OFF	ON
LED	Blinking	Lighting			
LD1	Reversed phase	Compressor ON command from indoor controller	1	1	256
LD2	Open phase	Heating operation command from indoor controller	2	2	512
LD3	Outdoor coil thermistor is abnormal	During 63H1 function	4	4	1024
LD4	63H2 function	Compressor ON	8	8	2048
LD5	51C function	Outdoor fan ON	16	16	4096
LD6	26C function	4-way valve ON	32	32	8192
LD7	Overheat protection	Bypass valve ON	64	64	16384
LD8	Input circuit on controller board is abnormal	Crankcase heater ON	128	128	32768

### 3-1 Outdoor coil temperature

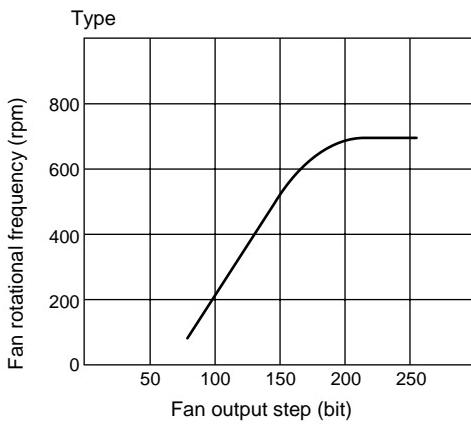
To obtain data on the outdoor coil temperature, add the number of bits of lighting LED, and see the graph below to find the temperature.



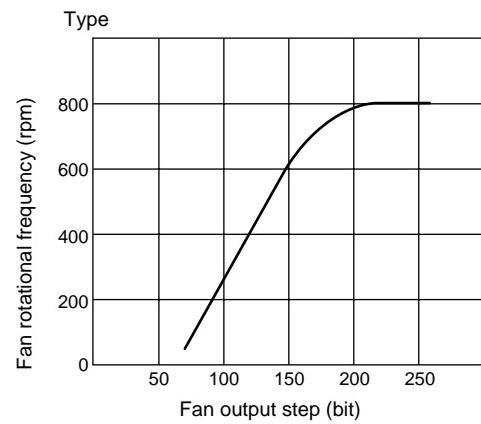
### 3-2 Fan output step

To obtain data on the fan output step, add the number of bits of lighting LED, and see the graph below to find the fan rotational frequency.

①PUH-1.6/2VKA  
PUH-4YKSA  
<50HZ>



②PUH-2.5VKA  
PUH-3VKA/3YKA  
<50HZ>



### 3-3 Total time of compressor operation

Compressor operation time is indicated in 256 hour units. To obtain the compressor operation time, add the hours of lighting LED. During the compressor operation time indication, SW2 is not available.

### 3-4 Inspection code indication

When the inspection code is displayed twice during the normal operation, the operation changes to INSPECTION mode automatically.

(On the first display of the inspection code, the mode changes to Restarting Protection Mode for 3 minutes and the operation restarts after 3 minutes.)

\*1) When the mode changes to INSPECTION by pressing the SW2 "ON", the operation will be continued if during operation.

\*2) When pressing except for the SW3-1 OFF and SW3-2 OFF, the mode changes to INSPECTION but the indication code is not displayed.

\*3) During the INSPECTION when the indoor controller operates OFF → ON of the compressor, output is displayed.

### 3-5 SW1 operation

The inspection code is deleted by operating the SW1 "ON" and also self-preservation is released, if during self-preservation.

Or if while the inspection code is blinking, it changes output display.

Note) SW1 has no connection with the Dip SW3 setting and is available at any time. However, when the inspection code is displayed initially (anti-phase, phase interruption), SW1 will be unavailable.

#### 4. TROUBLESHOOTING ACCORDING TO CHECK CODE

Blinking LED	Diagnosis of malfunction	Cause	Check point
LD1	Reversed phase	Phases L <sub>1</sub> , L <sub>2</sub> , and L <sub>3</sub> are connected improperly.	Check the power supply connection.
LD2	Open phase	<ul style="list-style-type: none"> <li>● Phase L<sub>2</sub> is open.</li> <li>● Contact of protector, such as thermal switch, opened when power was turned on.</li> </ul>	<ul style="list-style-type: none"> <li>● Check the power supply.</li> <li>● Check each protector.</li> </ul>
LD3	Outdoor coil thermistor is abnormal. (Open circuit or short circuit)	<ul style="list-style-type: none"> <li>● Outdoor coil thermistor is broken.</li> <li>● Thermistor was connected incorrectly.</li> </ul>	<ul style="list-style-type: none"> <li>● Measure the resistance of the thermistor.</li> <li>● Check the thermistor. If normal, replace the outdoor controller board.</li> </ul>
LD4	High pressure switch (63H2) function	<ul style="list-style-type: none"> <li>● 62H2 was badly connected.</li> <li>● 63H2 was working.</li> </ul>	<ul style="list-style-type: none"> <li>● Check 63H2 and the outdoor fan motor.</li> <li>● Check if refrigerant supply is low.</li> <li>● Check if air cycle is short-cycled.</li> </ul>
LD5	Thermal relay (51C) function	<ul style="list-style-type: none"> <li>● 51C was connected incorrectly.</li> <li>● 51C was working.</li> </ul>	<ul style="list-style-type: none"> <li>● Check 51C, the compressor, and power supply.</li> </ul>
LD6	Thermal switch (26C) function.	<ul style="list-style-type: none"> <li>● 26C was connected incorrectly.</li> <li>● 26C is working.</li> </ul>	<ul style="list-style-type: none"> <li>● Check 26C.</li> <li>● Check if refrigerant supply is low.</li> <li>● Check if the capillary tube is clogged.</li> </ul>
LD7	Over heat protection	<ul style="list-style-type: none"> <li>● The thermistor is broken.</li> <li>● Coil temperature is over 67°C.</li> </ul>	<ul style="list-style-type: none"> <li>● Measure the resistance of the thermistor.</li> <li>● Check the outdoor fan motor.</li> <li>● Check if air cycle is short-cycled.</li> </ul>
LD8	Input circuit of outdoor controller board is abnormal.	<ul style="list-style-type: none"> <li>● Pulse input is abnormal.</li> </ul>	<ul style="list-style-type: none"> <li>● Replace the outdoor controller board.</li> </ul>

#### 5. WHEN OUTDOOR UNIT DOES NOT WORK

Cause	Check points
1) Indoor/outdoor connecting wires are poorly connected. (Refer to next page.) 2) Power supply is poorly connected. 3) Connector or transformer is broken. 4) Fuse (6A) in the outdoor controller board is blown.	1) Check the connecting wires. 2) Check the power supply. 3) Check connectors and transformers. 4) Check the fuse.

## 6. WRONG WIRING ON SITE

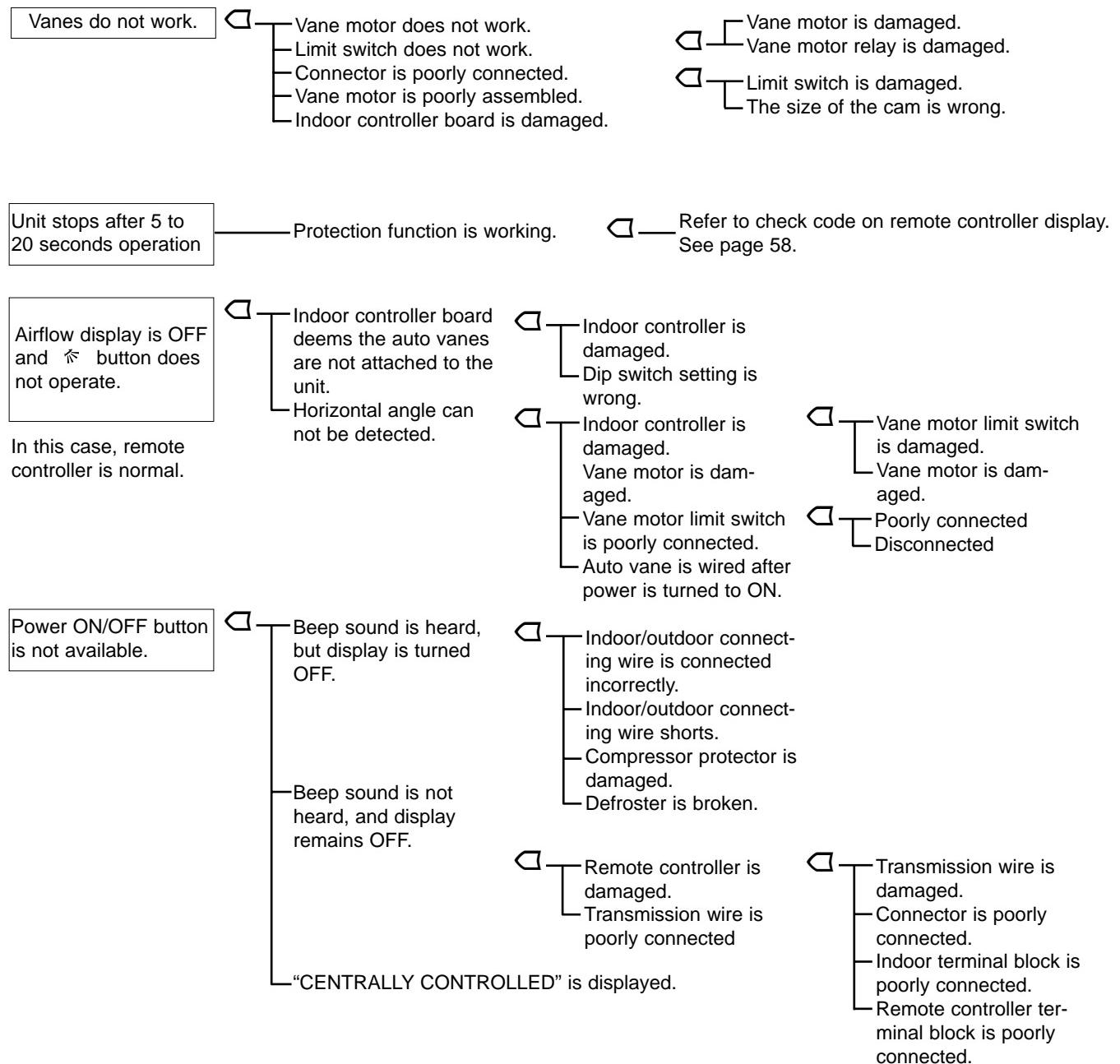
### 6-1 Between remote controller and indoor unit

If the wire is disconnected between the remote controller and the indoor unit, nothing is displayed on the remote controller when the POWER button is pressed. The beep sound will also not be heard.

### 6-2 Phenomenon due to wrong wiring between indoor and outdoor units

Wrong wiring	Mode	Thermostat	Phenomenon
	COOL	OFF	Operation stops.
		ON	4-Way valve turns ON. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Cooling operation. Several minutes later, check code "P8" appears on remote controller display.
		ON	Normal operation.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Operation stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops. 4-way valve turns OFF.
		ON	27 minutes later, check code "P8" appears on remote controller display.
	COOL	—	Normal operation.
		OFF	Operation stops. 4-way valve turns ON.
	HEAT	ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.

## 7. OTHER TROUBLES AND CAUSES



## 8.MR. SLIM/LOSSNAY INTERLOCK OPERATION

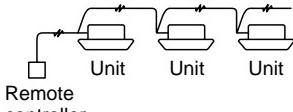
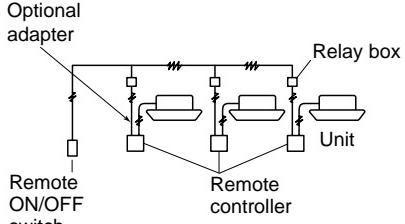
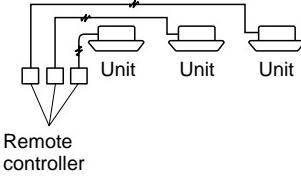
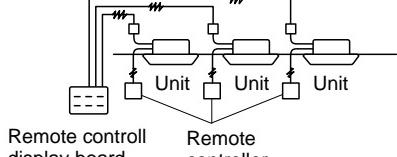
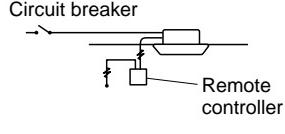
### <Symptoms that are not malfunctions>

If any of the following symptoms occur, they are not malfunctions.

Symptom	Cause
LOSSNAY control switch does not work.	LOSSNAY control switch can not work during interlock operation. LOSSNAY control switch is effective only while Mr. SLIM is not operating.
LOSSNAY air speed can not be controlled in interlock operation.	LOSSNAY fan speed is fixed to HIGH during interlock operation. LOSSNAY fan speed LOW/HIGH can be switched only during LOSSNAY individual operation with the LOSSNAY control switch.

For LOSSNAY, troubleshooting refer to the LOSSNAY technical & service manual.

## 1. VARIETY OF SYSTEM CONTROL FUNCTIONS

<p><b>①</b> Group control with a single remote controller (See page 66.)</p>		<p>Many units, installed at different locations, can be started and controlled with a single remote controller. The remote controller can be mounted in a different location using a non-polar two-wire cable, which can be extended up to 500m. A maximum of 50 units can be controlled with a single remote controller. All units operate in the same mode.</p>
<p><b>②</b> Both remote ON/OFF and individual controls (See page 67.) ※ Timer adapter (PAC-SA89TA-E) is needed.</p>		<p>All units can be turned on or off simultaneously using a remote ON/OFF switch. Also, each unit can be controlled individually by each remote controller. During remote ON/OFF control, a message of "CENTRALLY CONTROLLED" is displayed on the LCD of the remote controller. This is available for both one unit control and several units control.</p>
<p><b>③</b> Individual control by grouping remote controllers (See page 68.)</p>		<p>By grouping the remote controllers in one place, several units installed at different locations can be controlled individually, and operation conditions of all units are visible without a special control board. The control method is the same as that of the single unit with a single remote controller.</p>
<p><b>④</b> Multiple remote control display (See page 69.) ※ Multiple display adapter (PAC-SA88HA-E) is needed.</p>		<p>Several units can be controlled with a remote control display board. Operation conditions of all the units are visible with the remote control display board. Individual control by each remote controller is also possible.</p>
<p><b>⑤</b> Auto restart function (See page 69.)</p>		<p>A unit can be started or stopped with the circuit breaker on or off. Remote controller is also available. With this function, when the power is restored after power failure, the unit will restart automatically. (However, when the remote controller POWER ON/OFF button is OFF, the unit will not start.)</p>

## 2. GROUP CONTROL WITH A SINGLE REMOTE CONTROLLER

A maximum of 50 units can be started in order according to the dip switch settings

### 2-1 How to wire

- (1) Connect the remote controller to the double terminal block on the indoor controller board of the master unit (No.0 unit). (See Figure 1.)
- (2) Connect the double terminal block of the master unit to the double terminal block of No.1 unit.
- (3) Connect the double terminal block of No.1 unit to the double terminal block of No.2 unit.
- (4) Continue the process until all the units are connected with two-wire cables. (See Figure 2.)
- (5) Remove the connector CN40 from the indoor controller board of each unit except the master unit. (See Figure 3.)
- (6) Set the unit-address of each unit with SW2 on the indoor controller board following the instructions below.

### 2-2 How to set unit-address

The unit-address also serves as a successive-start timer which starts each unit at intervals of 1 second. If two or more units have the same unit-address in a group control, operation stops due to system error. Be sure to set SW2 correctly following the instructions below.

- (1) Each lever of SW2 shows the number as follows.

SW2-1 : 1	SW2-4 : 8
SW2-2 : 2	SW2-5 : 16
SW2-3 : 4	SW2-6 : 32

- (2) Total number of levers turned to ON shows the address of the unit.

For example, to set No.3 unit, turn ON SW2-1 and SW2-2.

- (3) In this way, set from the master unit to the last unit.

Do not forget to set the master (No. 0) unit.

### Setting examples

	Master (No. 0) unit	No. 1 unit	No. 2 unit	No. 4 unit	No. 8 unit	No. 16 unit	No. 32 unit
SW2	ALL OFF 	1 ON 	2 ON 	3 ON 	4 ON 	5 ON 	6 ON 
Unit address & start delay in seconds.	0	1	2	4	8	16	32

### 2-3 Unit control

The remote controller can control all units ON/OFF, temperature, air flow, and swing louver. However, the thermostat in each unit turns ON or OFF individually to adjust to the room temperature.

Figure 1

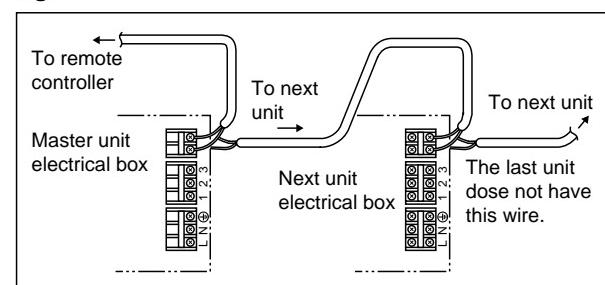


Figure 2

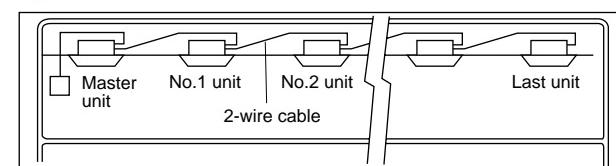
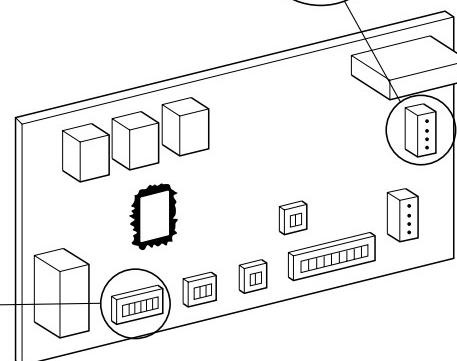


Figure 3

Indoor controller board ▼

Should be removed from all units other than unit No.0:(Master Unit)



### 3. REMOTE ON-OFF AND INDIVIDUAL REMOTE CONTROLS

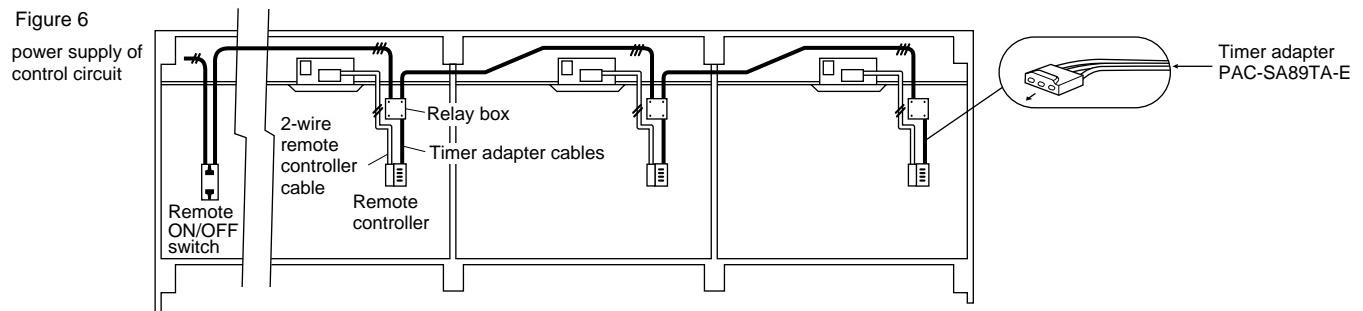
This method is available to control one unit or any number of units.

The following operations are available by connecting a relay, a timer adapter (PAC-SA89TA-E), and a remote ON/OFF switch to the system. Timer adapter is an optional part. Other parts are available on the market.

- (A) To start all units in order by remote ON-OFF switch
- (B) To stop all units simultaneously by remote ON-OFF switch
- (C) To switch between the remote ON-OFF control and the individual remote control

#### 3-1 System

Figure 6 shows the case of three units. The same is the case with any number of units.



NOTE1 : Install the relay box where you can be serviced it easily.

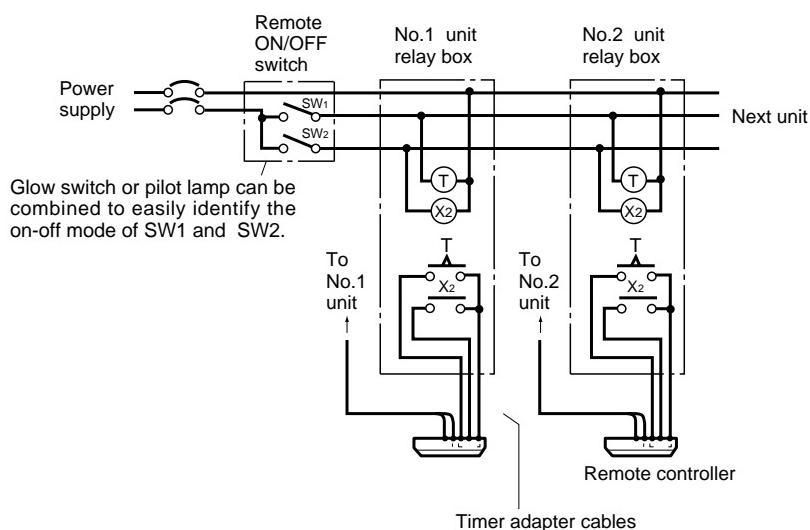
NOTE2 : For control circuit wiring, use a wire of No. 14 AWG or a control cable according to the power supply of control circuit.

NOTE3 : When the power supply of the control circuit is 220/240V AC,

- Do not connect the control circuit wire to the remote controller cable directly.
- Do not place the control circuit wire and the remote controller cable into the same conduit tube.

#### 3-2 Basic wiring

Caution : Before starting all units simultaneously by the remote ON-OFF switch, be sure to connect a sequence-start timer into the remote ON-OFF circuit. Otherwise, a rush of starting current may damage the power supply.



### 3-3 Switch function of remote ON-OFF switch

		SW2 (Switches between remote ON-OFF and individual control)	
		ON (Remote ON-OFF control)	OFF (Individual control)
SW1 (Switches between remote ON and OFF.)	ON (Start)	All units start together. *1 Individual control is not available.	Each unit can be controlled by each remote controller.
	OFF (Stop)	All units stop together. *2 Individual control is not available.	Remote ON-OFF switch is not available.

\*1 After all units start together, if SW2 is turned OFF, each unit can be individually stopped by each remote controller.

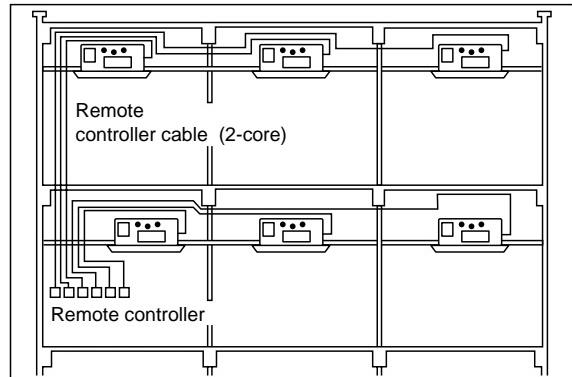
\*2 After all units stop together, if SW2 is turned OFF, each unit can be individually started by each remote controller.

## 4. INDIVIDUAL CONTROL BY GROUPING THE REMOTE CONTROLLERS

Grouping the remote controllers allows individual control and centralized monitoring of units installed in different places without a special control board.

Remote control cables are extendable up to 500m. When the cable length exceeds 12m, use the double-insulated two-core cable such as Belden 9407. Also, the cable thickness must be No. 22 AWG or above.

When gathering the power ON/OFF switches of air conditioners near the remote controllers, you should also install the power ON/OFF switch near each unit to prevent electric trouble during servicing.

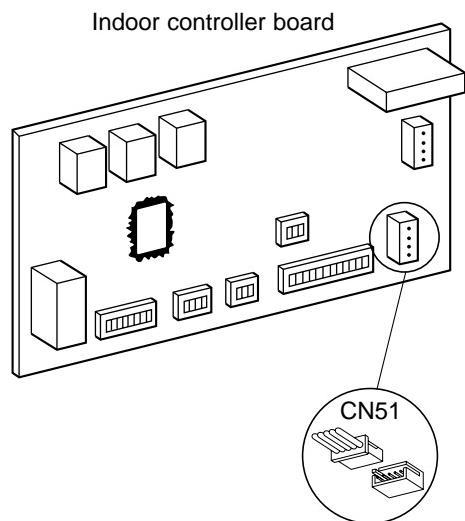
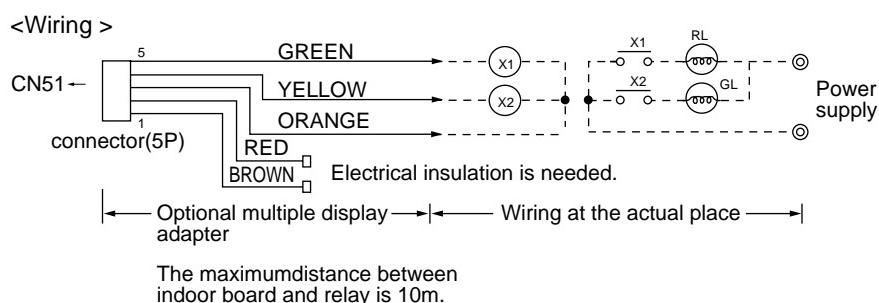


## 5. MULTIPLE REMOTE CONTROL DISPLAY

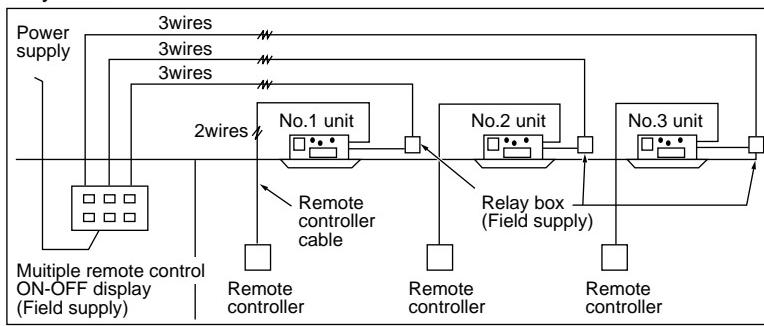
You can control several units with a multiple remote control display, by wiring an optional multiple display adapter (PAC-SA88HA-E) with relays and lamps on the market.

### 5-1 How to wire

- (1) Connect the multiple display adapter to the connector CN51 on the indoor controller board.
- (2) Wire three of the five wires from the multiple display adapter as shown in the figure below.

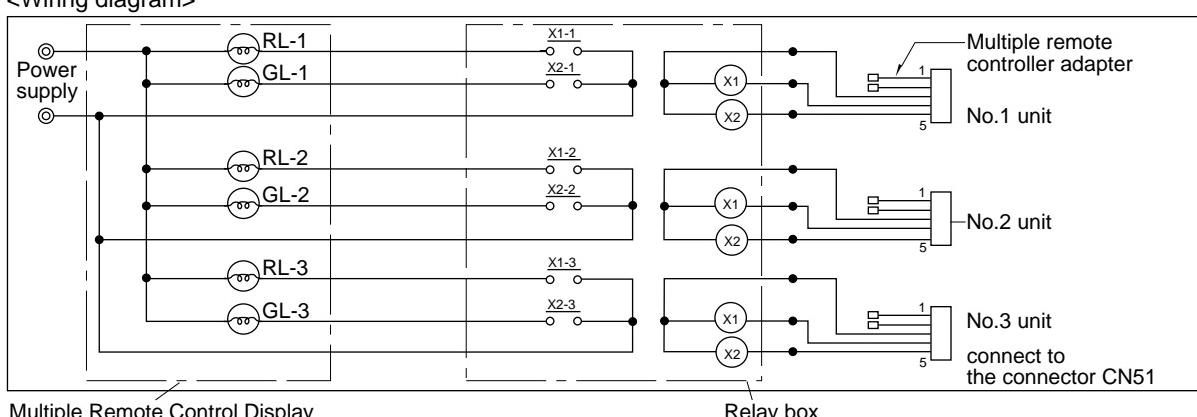


### <System>



[Notes on Signs]  
 X1:Relay (for check lamp)  
 X2:Relay (for operation lamp)  
 RL:Check Lamp  
 GL:Operation Lamp  
 [Field supplied parts]  
 Relays:12V DC with rated coil power consumption below 0.9W.  
 Lamps:Matching to power supply voltage.

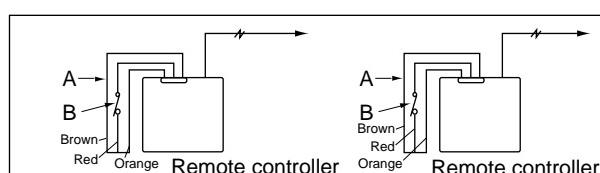
### <Wiring diagram>



## 6. AUTO RESTART FUNCTION

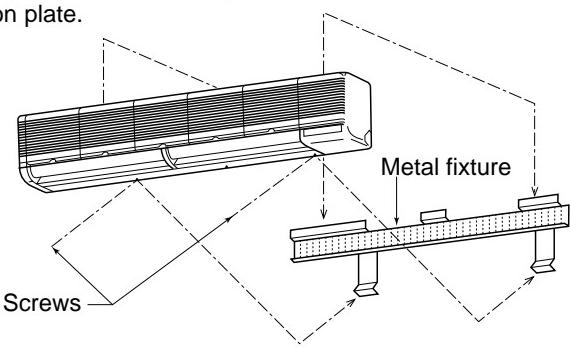
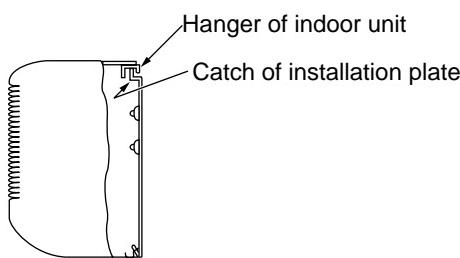
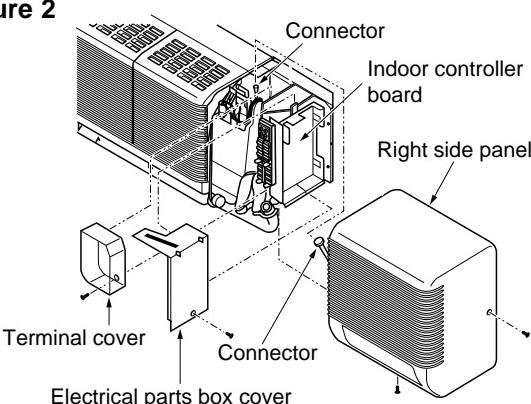
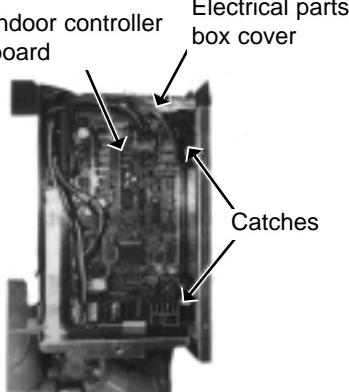
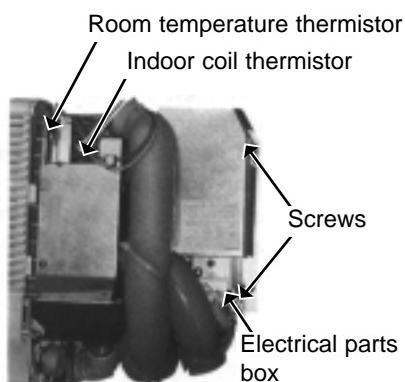
By setting the dip switch SW1-10 to ON, the air conditioner can be started/stopped by power supply ON/OFF. If the air conditioner is OFF before the power failure, it will not start operation by power restore.

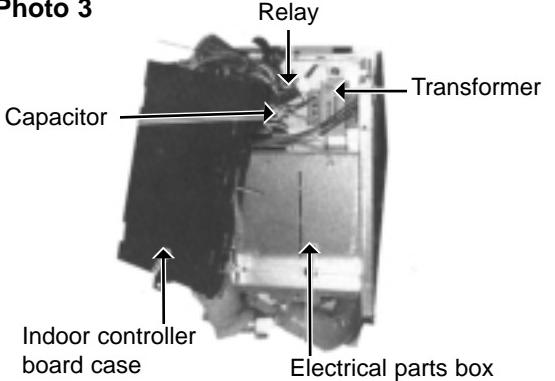
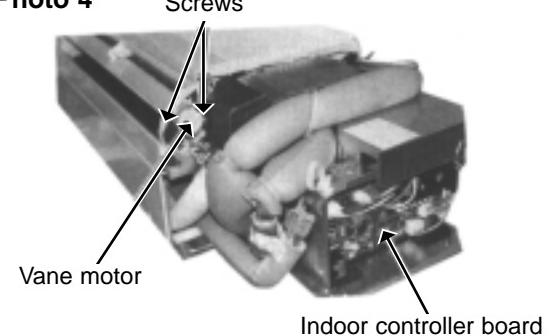
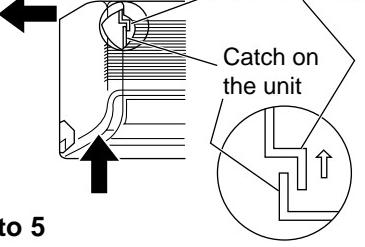
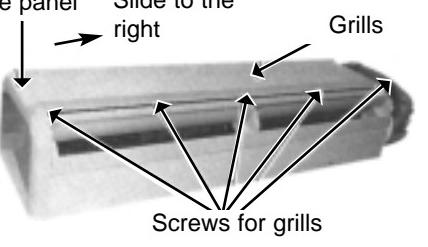
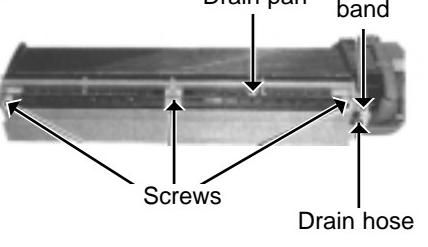
### <Wiring>

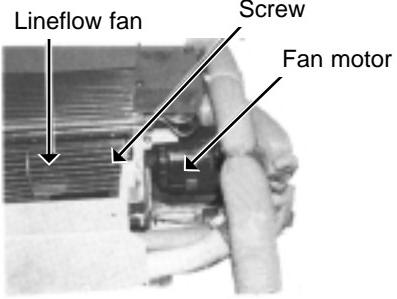
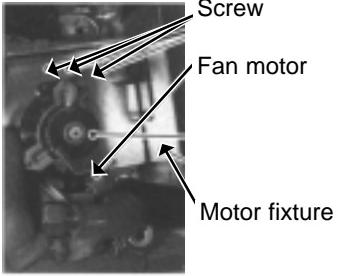
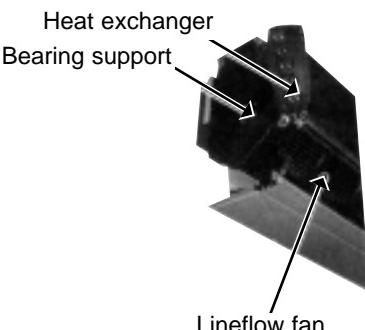
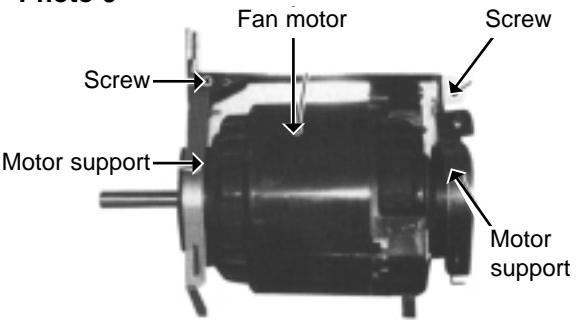
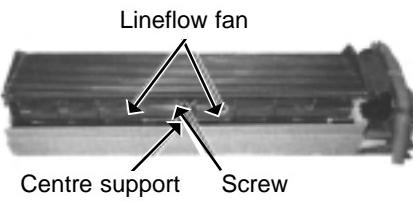


For remote control, connect the optional timer adapter (PAC-SA89TA-E)

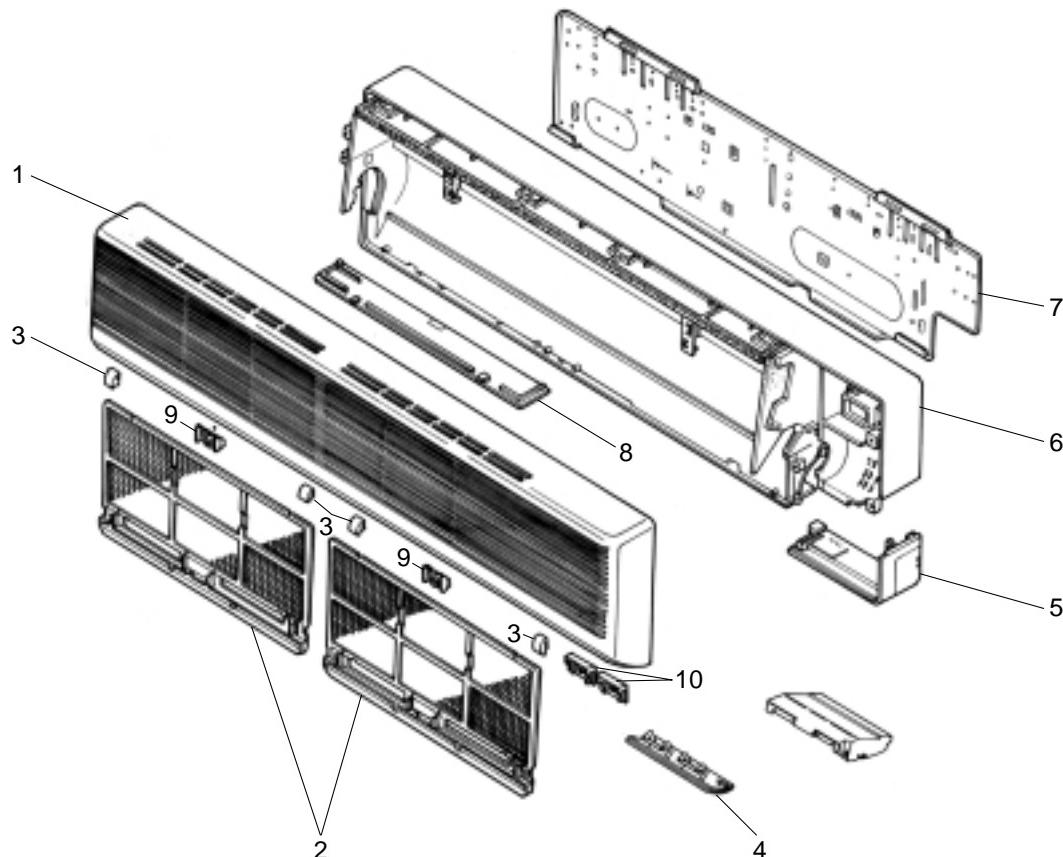
## PKH-3FKA-E

OPERATING PROCEDURE	PHOTOS&ILLUSTRATION
<p><b>1. Removing the lower side of the indoor unit from the installation plate</b></p> <p>(1) Remove the 2 screws. Hang the indoor unit hangers to the catches on the installation plate.</p> 	<p><b>Figure 1</b></p> 
<p><b>2. Removing the right side panel</b></p> <p>(1) Remove the 2 screws of the right side panel: one on the bottom and the other on the upper right-hand side. (2) Disconnect the connector from the adapter case. (3) Sliding the right side panel to the right, pull it out toward you.</p>	<p><b>Figure 2</b></p> 
<p><b>3. Removing the indoor controller board</b></p> <p>(1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover, and remove the cover. (3) Disconnect the connectors on the indoor controller board. (4) To unhook the catches on the right-hand side of the indoor controller board, pull the left-hand side toward you and lift up the cover to the right. Then the indoor controller board can be removed.</p>	<p><b>Photo 1</b></p> 
<p><b>4. Removing the electrical parts box</b></p> <p>(1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover, and remove the cover. (3) Remove the room temperature thermistor and the indoor coil thermistor. (4) Disconnect the vane motor connector on the indoor controller board. (5) Remove the 2 screws of the electrical parts box. (6) Disconnect the connector of the heater lead wire connector. (7) Disconnect the connector of the fan motor lead wire. (8) Remove the electrical parts box.</p>	<p><b>Photo 2</b></p> 

OPERATING PROCEDURE	PHOTOS&ILLUSTRATION
<p>(9) Remove the screws of the indoor controller board case, and pull out the indoor controller board case. Then the transformer and the capacitor and relay can be serviced.</p>	<p><b>Photo 3</b></p> 
<p><b>5. Removing the vane motor</b></p> <ol style="list-style-type: none"> <li>(1) Remove the right side panel.</li> <li>(2) Remove the screw of the electrical parts box cover, and remove the cover.</li> <li>(3) Remove the 2 screws of the vane motor, and remove the motor from the shaft.</li> <li>(4) Disconnect the vane motor connector on the indoor controller board.</li> </ol>	<p><b>Photo 4</b></p> 
<p><b>6. Removing the intake grills</b></p> <ol style="list-style-type: none"> <li>(1) Remove the right side panel.</li> <li>(2) To remove the left side panel, remove the screw on the bottom and the screw on the upper left-hand side. (See Figure 3.)            1. Press up this side of the left side panel to unhook the catch on the panel from the catch on the unit.            2. Slide the left side panel to the left to remove the panel.            Note: Fix the unit to the metal fixture securely</li> <li>(3) Remove the air filters.</li> <li>(4) Hold and press the centre cover to remove.</li> <li>(5) Remove the screws of the grills.</li> <li>(6) Pull the lower side of the grill toward you and slide the upper to the right to remove the grills.</li> </ol>	<p><b>Figure 3</b></p>  <p><b>Photo 5</b></p> 
<p><b>7. Removing the drain pan</b></p> <ol style="list-style-type: none"> <li>(1) Remove the left and right side panels.</li> <li>(2) Remove the grills.</li> <li>(3) Remove the electrical parts box cover.</li> <li>(4) Loosen the drain hose band to remove.</li> <li>(5) Remove the 3 screws of the drain pan, and slide the drain pan toward you to remove.</li> </ol>	<p><b>Photo 6</b></p> 

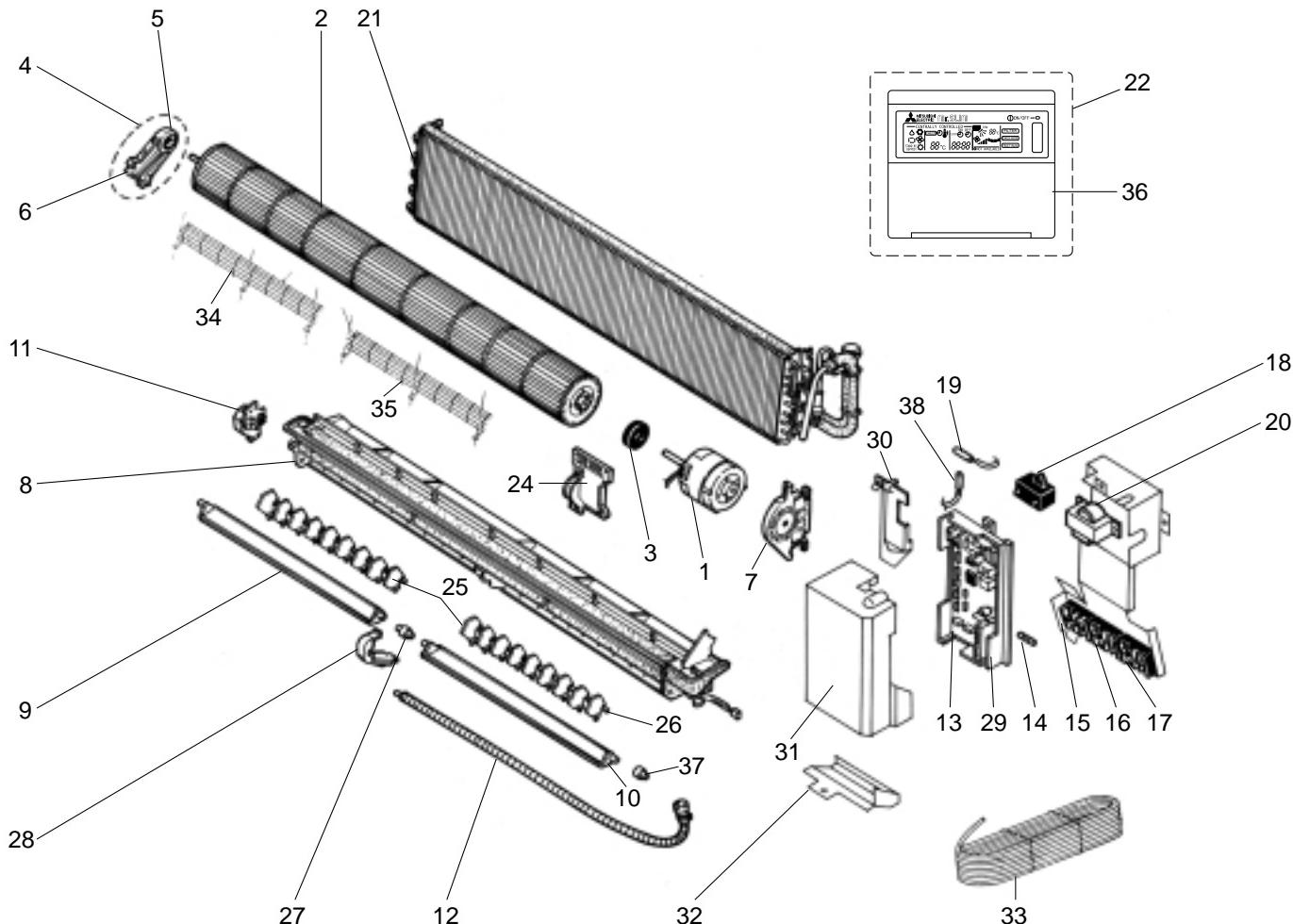
OPERATING PROCEDURE	PHOTOS
<p><b>8. Removing the lineflow fan and the fan motor</b></p> <p>(1) Remove the left and right side panels.  (2) Remove the grills.  (3) Remove the electrical parts box.  (4) Remove the drain pan.  (5) Loosen the screw that fixes the lineflow fan to the fan motor. (See Photo 7.)  (6) Remove the 4 screws of the motor fixture, and remove the fan motor and the motor fixture at a time (See Photo 8.)  (7) Remove the screws of the left and right motor supports, and remove the motor supports and the fan motor. (See Photo 9.)  (8) Remove the 2 screws on the left and right sides of the heat exchanger, and pull the bearing support toward you. (See Photo 11.)  (9) Remove the screw of the centre support, and remove the support. (See Photo 10.)  (10) Pull the left-hand side of the heat exchanger toward you, and remove the lineflow fan.</p>	<p><b>Photo 7</b></p>  <p><b>Photo 8</b></p> 
<p><b>Photo 11</b></p> 	<p><b>Photo 9</b></p> 
	<p><b>Photo 10</b></p> 

**STRUCTURAL PARTS**  
**PKH-1.6FKA-E**  
**PKH-2FKA-E**



No.	Part No.	Part Name	Specification	Q'ty/set	Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-1.6/2				Unit	Amount
				FKA-E					
1	R01 KV5 651	FRONT PANEL		1					
2	R01 47J 500	AIR FILTER		2					
3	R01 KV5 096	SCREW CAP		4					
4	T7W 580 058	SERVICE PANEL		1					
5	R01 KV5 658	CORNER COVER		1					
6	R01 KV5 635	BOX ASSEMBLY		1					
7	R01 KV5 808	BACK PLATE		1					
8	R01 KV5 623	UNDER COVER		1					
9	—	CATCH HOLDER		2	(BC25R572H06)				
10	—	PANEL CATCH		2	(BC25G057H07)				

**ELECTRICAL PARTS**  
**PKH-1.6FKA-E**  
**PKH-2FKA-E**



No.	Part No.	Part Name	Specification	Q'ty/set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-1.6	PKH-2				Unit	Amount
				FKA-E	FKA-E					
1	T7W 570 762	FAN MOTOR	PK4V30KA	1	1			MF		
2	R01 KV5 114	LINEFLOW FAN		1	1					
3	R01 KV5 105	RUBBER MOUNT		2	2					
4	R01 KV5 106	BEARING SUPPORT		1	1					
5	R01 566 103	SLEEVE BEARING		1	1					
6	R01 KV5 102	BEALING MOUNT		1	1					
7	R01 KV5 130	MOTOR SUPPORT		1	1					
8	R01 93W 530	NOZZLE ASSEMBLY		1	1					
9	R01 KW1 002	LEFT ROTARY VANE		1	1					
10	R01 KW2 002	RIGHT ROTARY VANE		1	1					
11	R01 KV5 223	VANE MOTOR		1	1			MV		
12	R01 KV5 527	DRAIN HOSE		1	1					
13	T7W 70J 310	INDOOR CONTROLLER BOARD		1	1			I.B		
14	T7W 520 239	FUSE	250V 6.3A	1	1			F1<I.B>		
15	T7W 514 716	TERMINAL BLOCK	3P(L/N/Ø)	1	1			TB2		

Part number that is circled is not shown in the figure.

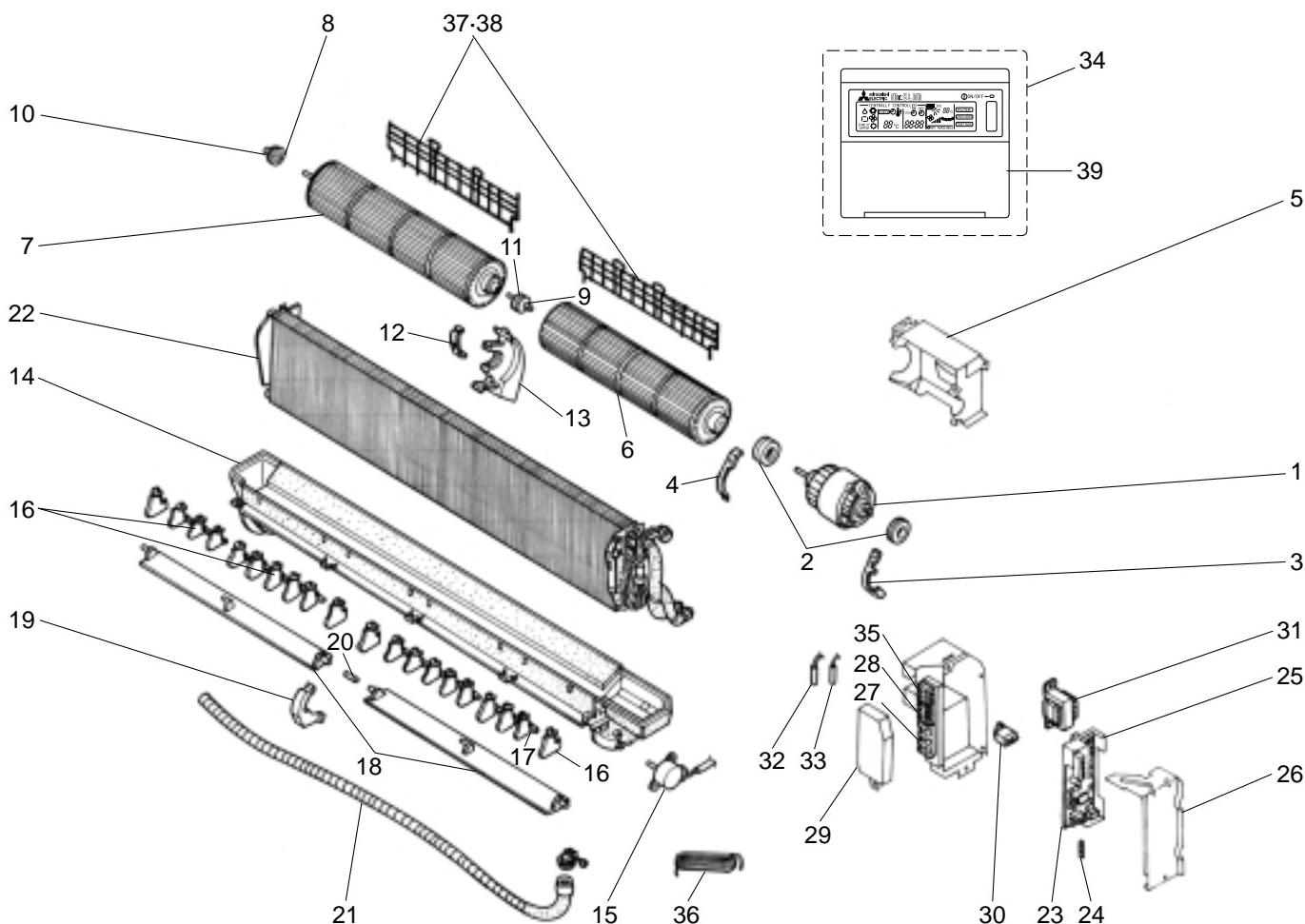
No.	Part No.	Part Name	Specification	Q'ty/set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-1.6	PKH-2				Unit	Amount
				FKA-E	FKA-E					
16	T7W 512 716	TERMINAL BLOCK	2P(1/2)	1	1		TB5			
17	T7W 517 716	TERMINAL BLOCK	3P(1/2/3)	1	1		TB4			
18	R01 588 255	FAN MOTOR CAPACITOR	2.0μF 440V	1	1		C			
19	R01 J07 202	INDOOR COIL THERMISTOR		1	1		RT2			
20	T7W 53J 799	TRANSFORMER		1	1		T			
21	T7W 53J 480	HEAT EXCHANGER		1						
	T7W 54J 480	HEAT EXCHANGER			1					
22	T7W 54J 200	REMOTE CONTROLLER BOARD		1	1		R.B			
(23)	R01 12G 523	DRAIN SOCKET		1	1					
24	R01 KV5 135	MOTOR COVER		1	1					
25	R01 KV5 038	GUIDE VANE		16	16					
26	R01 KV5 059	ARM		2	2					
27	R01 KV5 092	VANE SLEEVE		1	1					
28	R01 KV5 048	CENTER SUPPORT		1	1					
29	—	CONTROLLER CASE		1	1	(BG25B573H05)				
30	—	WATER SHIELD		1	1	(BG25B846H11)				
31	—	CONTROL BOX COVER		1	1	(BG02A326G06)				
32	—	TERMINAL COVER		1	1	(BG02B718H05)				
33	T7W 556 305	REMOTE CONTROLLER CABLE	12m	1	1					
34	T7W 52J 675	FAN GUARD (LEFT)		1	1					
35	T7W 51J 675	FAN GUARD (RIGHT)		1	1					
36	R01 08K 049	REMOTE CONTROLLER COVER		1	1					
37	R01 07Y 092	VANE SLEEVE		1	1					
38	T7W E03 202	ROOM TEMPERATURE THERMISTOR		1	1		RT1			

## ELECTRICAL PARTS

PKH-2.5FKA-E

PKH-3FKA-E

PKH-4FKSA-E



No.	Part No.	Part Name	Specification	Q'ty/set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2.5	PKH-3	PKH-4				Unit	Amount
				FKA-E	FKA-E	FKSA-E					
1	R01 12G 220	FAN MOTOR		1	1				MF		
	T7W 571 762	FAN MOTOR	D10A4P70MS			1			MF		
2	R01 12G 105	RUBBER MOUNT		2	2						
	R01 16G 105	RUBBER MOUNT				2					
3	—	MOTOR BAND		1	1	1	(BG02H065H01)				
4	—	MOTOR BAND		1	1	1	(BG02H178H01)				
5	—	MOTOR LEG		1	1		(BG02A534H16)				
	—	MOTOR LEG				1	(BG02A534H17)				
6	R01 13G 115	RIGHT LINEFLOW FAN		1	1						
	R01 17G 115	RIGHT LINEFLOW FAN				1					
7	R01 13G 114	LEFT LINEFLOW FAN		1	1						
	R01 17G 114	LEFT LINEFLOW FAN				1					
8	R01 005 103	SLEEVE BEARING		1	1	1					
9	R01 12G 103	SLEEVE BEARING		1	1	1					

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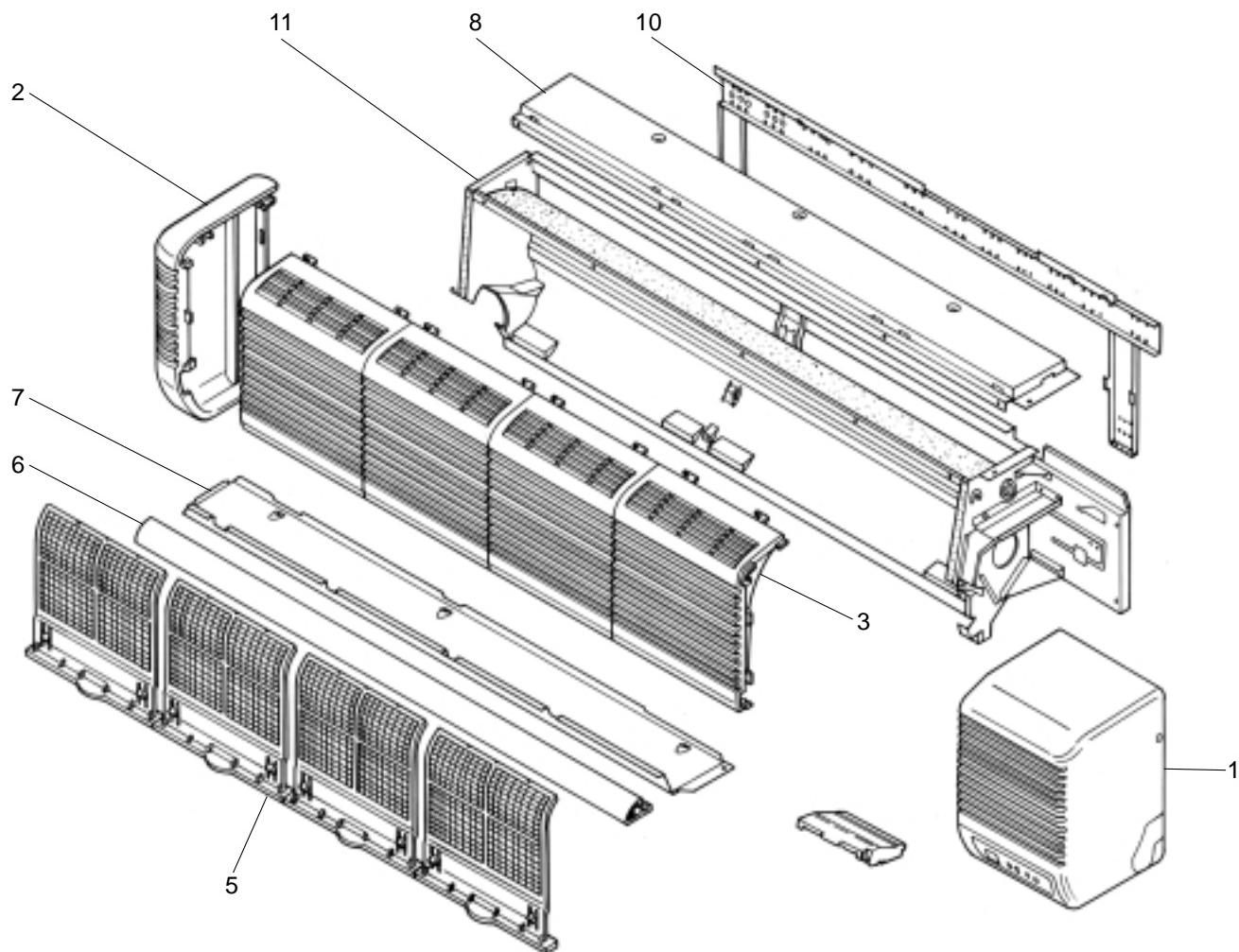
No.	Part No.	Part Name	Specification	Q'ty/set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2.5	PKH-3	PKH-4				Unit	Amount
				FKA-E	FKA-E	FKSA-E					
10	R01 Z61 102	BEARING MOUNT		1	1	1					
11	R01 KV5 102	BEARING MOUNT		1	1	1					
12	—	BEARING BAND		1	1	1	(BG02L462H02)				
13	—	CENTER SUPPORT		1	1	1	(BG25A543H07)				
14	R01 12G 529	DRAIN PAN		1	1						
	R01 16G 529	DRAIN PAN				1					
15	R01 12G 223	VANE MOTOR		1	1	1			MV		
16	—	GUIDE VANE		20	20	26	(BG25J821H02)				
	—	GUIDE VANE(WITH HANDLE)		4	4	4	(BG25J821H02)				
17	—	ARM		3	3	4	(BG25H301H02)				
18	R01 12G 002	AUTO VANE		2	2						
	R01 16G 002	AUTO VANE				2					
19	R01 12G 621	CENTER COVER		1	1	1					
20	R01 12G 063	JOINT SHAFT		1	1	1					
21	R01 KV5 527	DRAIN HOSE		1	1	1					
	T7W 585 480	HEAT EXCHANGER		1							
22	T7W 587 480	HEAT EXCHANGER				1					
	T7W 589 480	HEAT EXCHANGER				1					
23	T7W 71J 310	INDOOR CONTROLLER BOARD		1	1	1			I.B		
24	T7W 520 239	FUSE	250V 6.3A	2	2	2			F1.2<I.B>		
25	—	CONTROLLER CASE		1	1	1	(BG25B573H05)				
26	—	CONTROLLER COVER		1	1	1	(BG02A648G01)				
27	T7W 509 716	TERMINAL BLOCK	3P(L/N/⊕)	1	1	1			TB2		
28	T7W 517 716	TERMINAL BLOCK	3P(1/2/3)	1	1	1			TB4		
29	—	TERMINAL COVER		1	1	1	(BG02J608H05)				
30	R01 588 255	FAN MOTOR CAPACITOR	2.0μF 440V	1	1				C		
	R01 576 255	FAN MOTOR CAPACITOR	3.0μF 440V			1			C		
31	T7W 50J 799	TRANSFORMER		1	1	1			T		
32	R01 06A 202	ROOM TEMPERATURE THERMISTOR		1	1	1			RT1		
33	R01 22A 202	INDOOR COIL THERMISTOR		1	1	1			RT2		
34	T7W 53J 200	REMOTE CONTROLLER BOARD		1	1	1			R.B		
35	R01 512 716	TERMINAL BLOCK	2P(1/2)	1	1	1			TB5		
36	T7W 556 305	REMOTE CONTROLLER CABLE	12m	1	1	1					
37	T7W 53J 675	FAN GUARD		2	2						
38	T7W 71J 675	FAN GUARD				2					
39	R01 08K 049	REMOTE CONTROLLER COVER		1	1	1					

## STRUCTURAL PARTS

**PKH-2.5FKA-E**

**PKH-3FKA-E**

**PKH-4FKSA-E**



Part number that are circled are not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty/set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2.5	PKH-3	PKH-4				Unit	Amount
				FKA-E	FKA-E	FKSA-E					
1	R01 12G 661	RIGHT SIDE PANEL		1	1	1					
2	R01 12G 662	LEFT SIDE PANEL		1	1	1					
3	R01 12G 691	INTAKE GRILLE		2	2	2					
④	R01 16G 692	INTAKE GRILLE				1					
5	R01 A17 500	AIR FILTER		4	4	5					
6	R01 12G 811	NOSE		1	1						
	R01 16G 811	NOSE				1					
7	T7W E01 812	UNDER PLATE		1	1						
	T7W E00 812	UNDER PLATE				1					
8	T7W E00 641	TOP PLATE		1	1						
	T7W E01 641	TOP PLATE				1					
⑨	R01 12G 523	DRAIN SOKET		1	1	1					
10	R01 12G 808	BACK PLATE		1	1						
	R01 16G 808	BACK PLATE				1					
11	—	BOX ASSEMBLY		1	1		(BG00A593GM3)				
	—	BOX ASSEMBLY				1	(BG00A593GM4)				

## 1. REFRIGERANT PIPES

Service Ref. : PKH-1.6FKA-E/PKH-2FKA-E/PKH-2.5FKA-E/PKH-3FKA-E

Part No	PAC-05FFS-E	PAC-07FFS-E	PAC-10FFS-E	PAC-15FFS-E
Pipe length	5m	7m	10m	15m
Pipe size O.D.		Liquid: $\phi$ 9.52	Gas: $\phi$ 15.88	
Connection method		Indoor unit:Flared	Outdoor unit:Flared	

Service Ref. : PKH-4FKSA-E

Part No	PAC-SC51PI-E	PAC-SC52PI-E	PAC-SC53PI-E	PAC-SC54PI-E
Pipe length	5m	7m	10m	15m
Pipe size O.D.		Liquid: $\phi$ 9.52	Gas: $\phi$ 19.05	
Connection method		Indoor unit:Flared	Outdoor unit:Flared	

Note 1. How to connect refrigerant pipes.

Factory supplied optional refrigerant pipings contain refrigerant at the above atmospheric pressures. As long as the connection takes no more than 5 minutes, no air will enter, and there will be no need for air purging. Remove the blind caps and make the connections within 5 minutes. After the connections for the indoor and outdoor units are made, open the stop valve on the outdoor unit to allow refrigerant gas to flow.

If piping length exceeds 5m, an additional charge of refrigerant is needed.

Note 2. The following main parts are contained in the optional refrigerant piping kit.  
Heat insulating cover, vinyl tapes, nipples, sleeve and flange (for wall hole).

## 2. TIMER

When using a program timer, PAC-SK65PT, a program timer adapter (PAC-825AD) is also needed.

Service Ref.	PKH-1.6/2FKA-E, PKH-2.5/3FKA-E, PKH-4FKSA-E
Part No	PAC-SC32PTA(with set back function)
Model Name	Program timer

### 2-1 Program timer specifications

Service Ref.	PKH-1.6/2FKA-E, PKH-2.5/3FKA-E, PKH-4FKSA-E
Part name	Program timer
Part No.	PAC-SC32PTA
Exterior dimensions (inch)	5-4/32 X 4-23/32 X 23/32(130X120X18mm)
Installation	Wall mount
Type of clock	Quartz
Clock accuracy	$\pm$ 50seconds/month at 25°C
Display-Time	Liquid crystal display
-Week	Liquid crystal display
-Timer setting unit	Liquid crystal display
Program cycle	24 hours
Timer setting unit	30minutes
No.of set points	48/day
Power rating	5V DC $\pm$ 5%(Supplied by Remote Controller)
Set back function	Provided

### 2-2 Feature of program timer

#### (1) Daily timer function

Daily timer can be set in 30 minutes units for up to 24 hours.

Each unit can be set for unit ON, unit OFF, or setback operation.

#### (2) Setback operation (PAC-SK65PT)

Set back operation is useful for reducing running costs

e.g. At a hotel with a 24-hour system

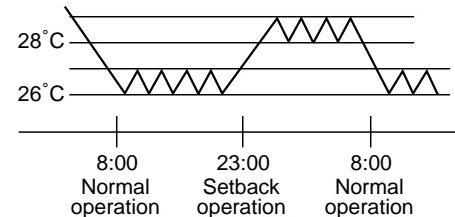
8:00~23:00 Cooling operation with set temperature at 26°C

23:00~8:00 Setback operation with 2 degrees of setback

As shown in the chart on the right, the set temperature rises 2 degrees automatically during the setback operation. When the setback operation ends, normal operation will begin.

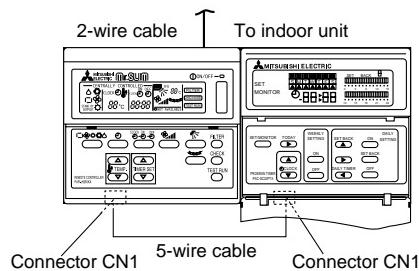
#### (3) Weekly timer function

Daily timer function can apply to each day of the week.



### 2-3. How to connect program timer

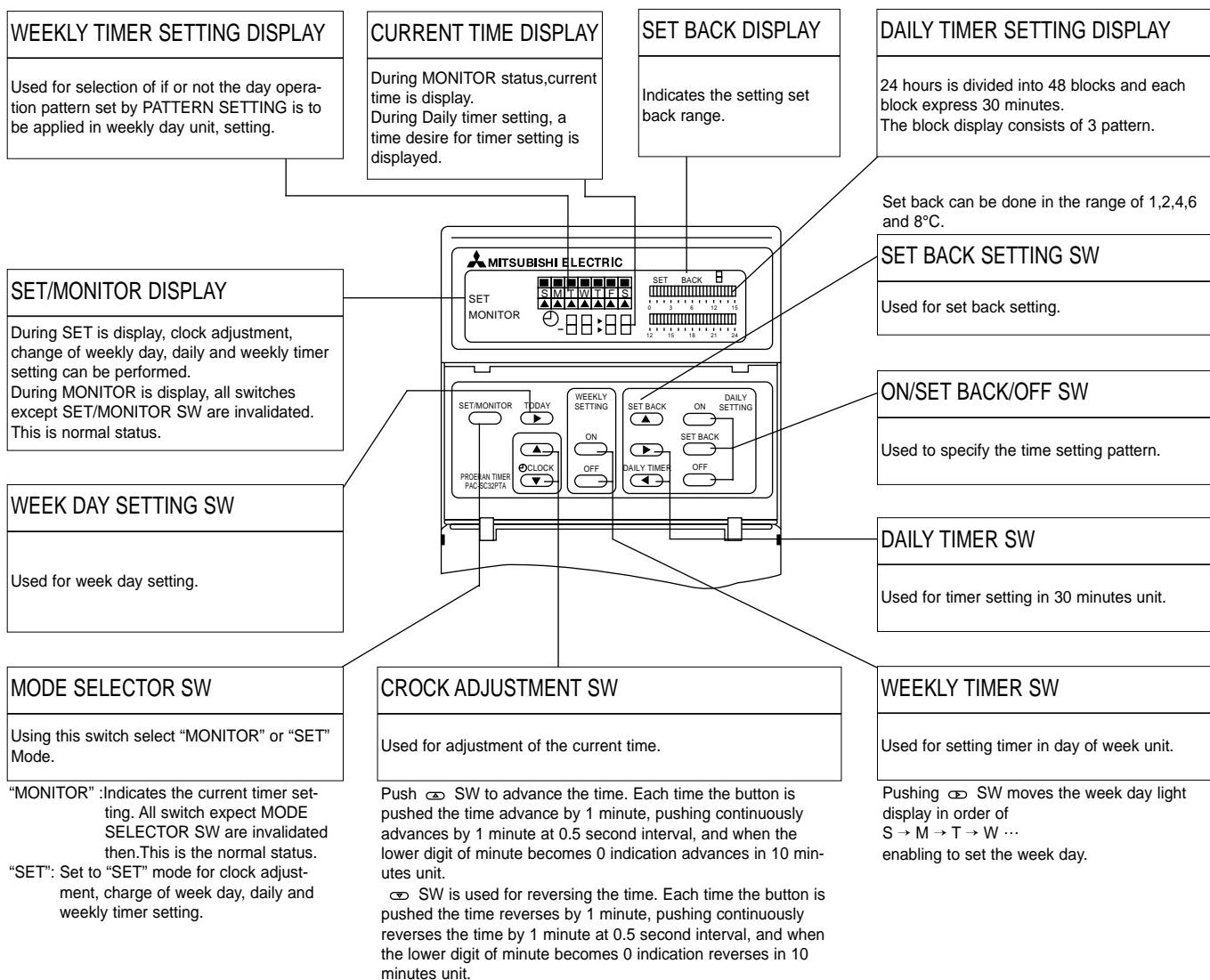
- (1) Install the program timer next to the remote controller the same way as the remote controller is installed.
- (2) Connect the program timer and the remote controller with a 6-wire cable as shown in the figure below



NOTE: While the program timer is connected to the remote controller, the 24hour ON/OFF timer on the remote controller will not operate.

### 2-4 Names and functions

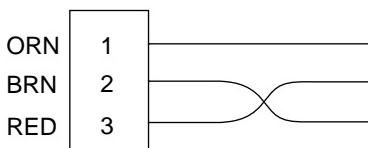
<PAC-SC32PTA>



### 3. TIMER ADAPTER

This adapter is needed for system control and for operation via external contacts. Adapter connection is described on page 59.

Part No.	PAC-SA89TA-E
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## 4. MULTIPLE REMOTE CONTROLLER ADAPTER

This adapter is needed for remote indication (operation/check). Adapter connection is described on page 84.

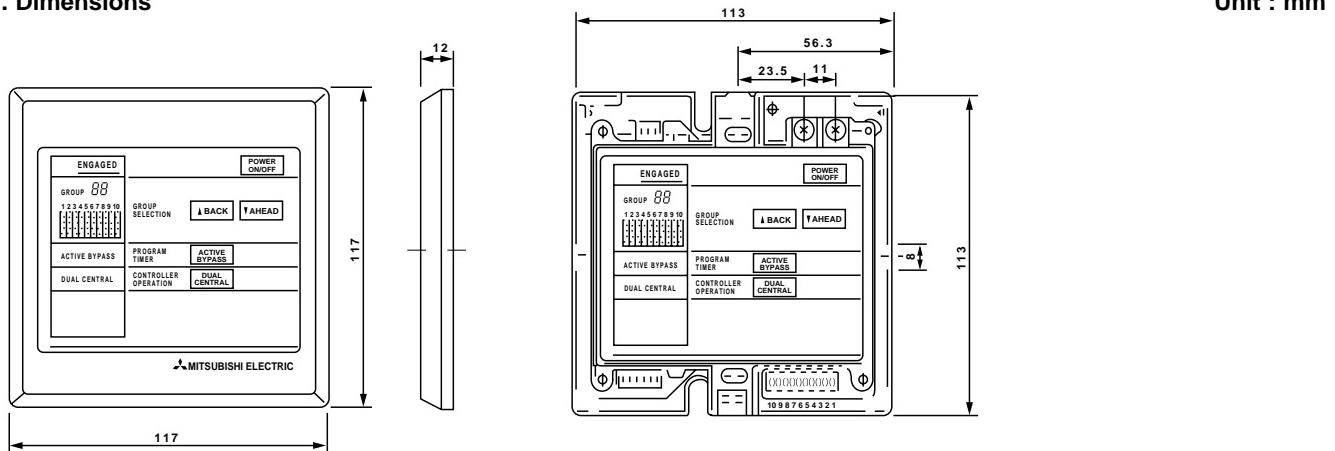
Part No.	PAC-SA88HA-E
1	BRN
2	RED
3	ORN
4	YLW
5	GRN

## 5. CENTRALIZED REMOTE CONTROLLER

Allows individual or combined control of up to 16 units. When using the PAC-805RC, the program timer adapter (PAC-825AD) is also needed. See page ##.

Part No.	PAC-805RC
----------	-----------

### 5-1. Dimensions



Unit : mm

### 5-2. Functions

"ENGAGED" indicator

When this indicator is lit, transmission is in progress and all switches are inoperative.

DUAL/CENTRAL switch

This change-over switch governing the operation of the accessory remote controller.

"DUAL"

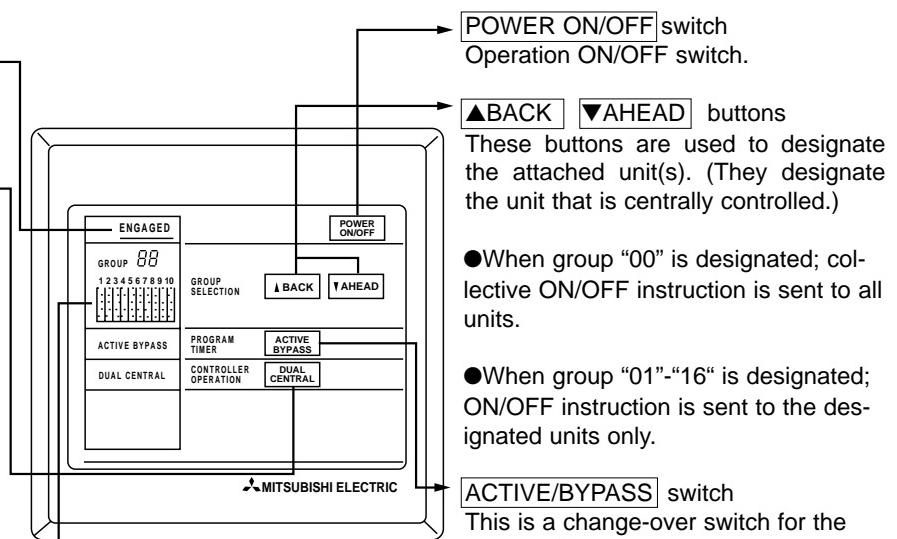
Instructions from both the accessory remote controller and the centralized remote controller are valid. (Priority given to the last instruction received.)

"CENTRAL"

ON/OFF switching by the accessory remote controller is invalidated. Control is by the centralized remote controller only. Initial setting is "DUAL".

LCD Matrix Display

This display indicates the operational status of all connected units either by steady lighting or by flashing.



POWER ON/OFF switch  
Operation ON/OFF switch.

▲BACK ▼AHEAD buttons

These buttons are used to designate the attached unit(s). (They designate the unit that is centrally controlled.)

●When group "00" is designated; collective ON/OFF instruction is sent to all units.

●When group "01"-“16” is designated; ON/OFF instruction is sent to the designated units only.

ACTIVE/BYPASS switch

This is a change-over switch for the program timer.

(It selects timer operation on the program timer.)

Use "BYPASS" when a program timer is not connected.

"ACTIVE"

The switch turns ON/OFF operational instructions from the program timer automatically.

"BYPASS"

ON/OFF Operation is by the centralized remote controller only.

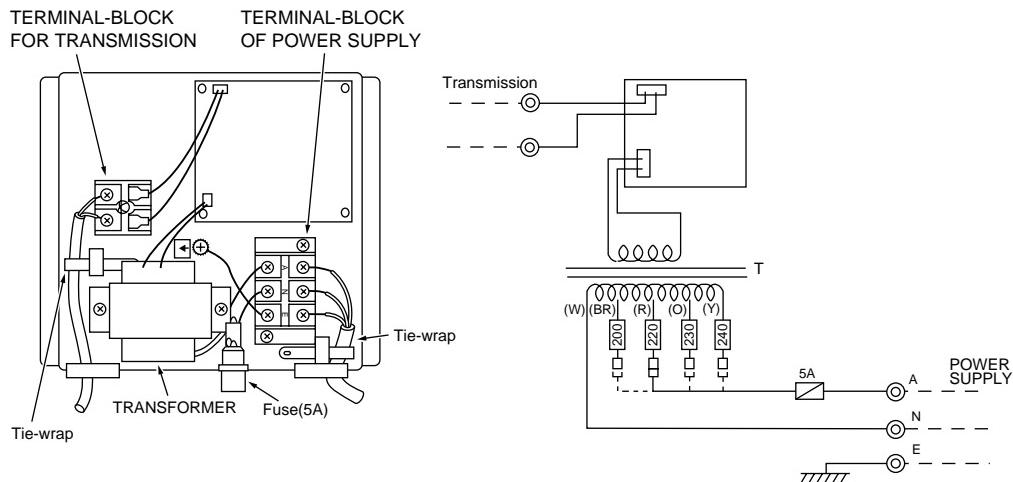
Initial setting is "BYPASS".

Independent "DUAL / CENTRAL" and "ACTIVE / BYPASS" setting of all the groups is possible. When the power supply to the centralized remote controller is cut due to power failure, all settings will return to original "DUAL" and "BYPASS".

### 5-3 Connection method

#### (1) Connections in the power supply cord.

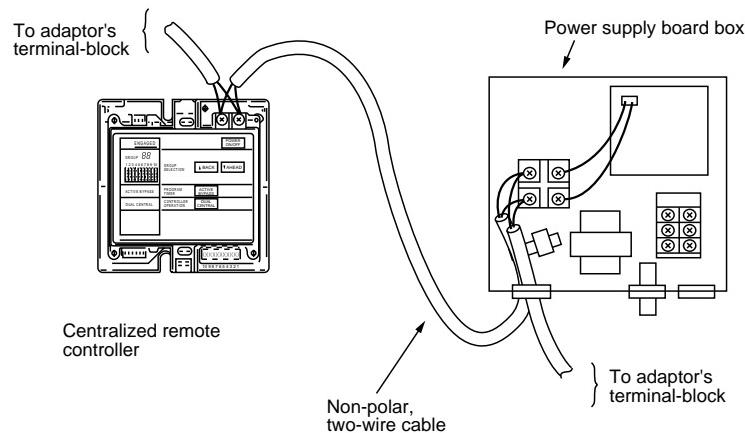
1. Connect the power supply cord to the power supply terminal-block and fix it in-place with a tie-wrap.  
Connect a single phase 200V AV (220, 230, 240V) to  $\textcircled{A}$   $\textcircled{N}$ .  
As  $\textcircled{E}$  is the GND terminal, be sure to ground the earth wire.
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap. Use a  $\varnothing 1.6$  (AWG 14) or above two-wire cable for the transmission line.  
**CAUTION** : Never connect the power supply cord to the transmission terminal-block.



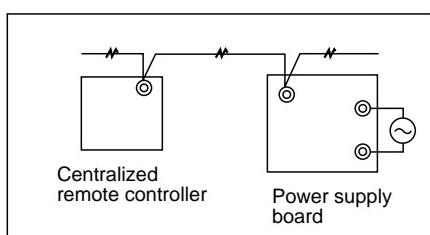
Wiring has to be changed when  
a 200,230 or 240V power is used.

#### (2) Connection method of centralized remote controller and power supply board.

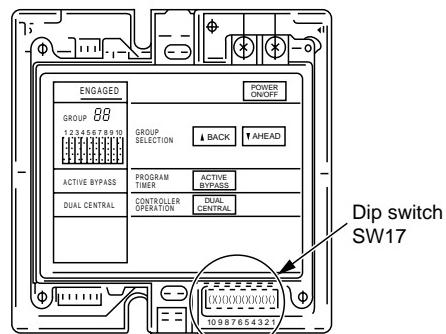
1. Connect the centralized remote controller and power supply board with a non-polar, two-wire cable.



#### 2. Wiring diagram



3. Be sure to set the maximum address number with the dip switch SW17 on the centralized remote controller.

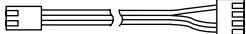


## 6. PROGRAM TIMER ADAPTER

This adapter is needed when a program timer(PAC-SC32PTA)or a centralized remote controller(PAC-805RC)is used.

Part No.	PAC-825AD
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### 6-1 Parts included

① ADAPTER.....1P	② 3-core cable.....1P  Length : 2m (6' 7")	③ 3-core cable.....1P  Length : 2m (6' 7")
	④ 4-core cable.....1P  Length : 2m (6' 7")	⑤ 5-core cable.....1P  Length : 2m (6' 7")

### 6-2 Connection method

Connection and wiring methods differ with the type of the indoor unit used. Confirm the type before carrying out the work.

#### (1) Connections in the adapter box

1. Connect the power supply cord to the terminal-block and fix it in-place with a tie-wrap.  
Connect a single phase 200V (220, 230, 240V) AV to Ⓐ ⑩.  
As ⑪ is the GND terminal, be sure to ground the earth wire.
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap (when a centralized remote controller is being used).  
CAUTION : Never connect the power supply cord to the transmission terminal-block

Fig-1

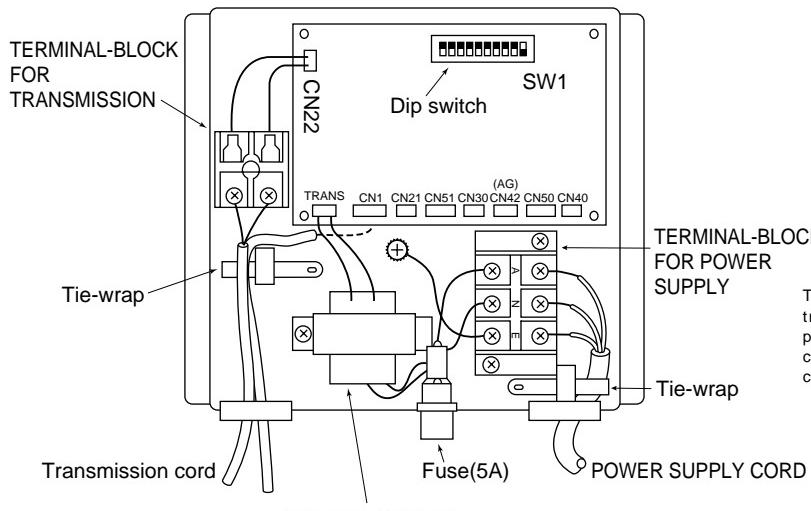
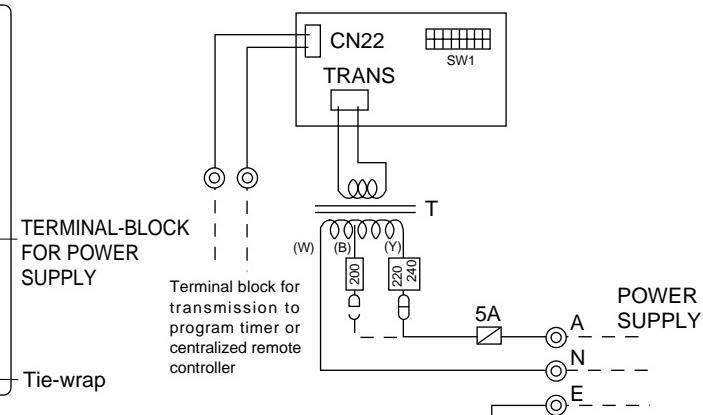


Fig-2



Wiring has to be changed when 200V power supply is used.

- (2) When the centralized remote controller is used, set the address number with the dip switch SW1 of the program timer adapter.

**7. DRAIN PUMP** (Only for PKH-2.5FKA-E / PKH-3FKA-E / PKH-4FKSA-E).

Part No.	PAC-SE89DM-E
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**MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE MITSUBISHI DENKI BLDG. MARUNOUCHI TOKYO 100-8310 TELEX J24532 CABLE MELCO TOKYO